

# South African Medical Journal Suid-Afrikaanse Tydskrif vir Geneeskunde

P.O. Box 643, Cape Town

Posbus 643, Kaapstad

Cape Town, 19 January 1957  
Weekly 2s. 6d.

Vol. 31 No. 3

Kaapstad, 19 Januarie 1957  
Weekliks 2s. 6d.

## EDITORIAL

### THE EIGHTH-NERVE SYSTEM

The advances in the field of otological research during the last 25 years have been most remarkable. Through technical advances and their application to experimentation on the ear and labyrinth important knowledge has been gained; physiology, physics, pathology, histology, biochemistry and clinical investigation have all provided the essential workers in the investigation of these highly organized sense organs. In a recent issue of the *British Medical Bulletin*<sup>1</sup> a number of articles by active workers in the field of neuro-otology shows what advances have been made.

The human temporal bone, which consists of very dense bone where it encloses the apparatus of hearing and equilibrium, presents great technical difficulties when serial histological sections are required. Details on the dimensions, form, cutting stroke, and metallurgical characteristics of the knives used for microtomy of the temporal bone are presented; specifications for the nitrocellulose to be used as the embedding medium are also given.

The nature and function of the labyrinthine fluids is considered in the light of recent biochemical data. It would appear that, in view of the higher protein concentration in the perilymph as compared with the cerebrospinal fluid, a semi-permeable barrier membrane exists at the cochlear extremity of the cochlear aqueduct; the larger protein molecules remain within the perilymph but the smaller electrolytes can cross the barrier. The endolymph is unique as an extracellular fluid in having a high potassium and low sodium concentration; the biochemical resemblance to intracellular fluid suggests that the endolymph is the product of some specialized secretory cells.

The advent of electrical methods of recording activity in nerve has revealed that the auditory nervous pathway plays a more important role than its obvious function of

## VAN DIE REDAKSIE

### DIE GEHOORSENUWEE-STELSEL

Besonder merkwaardige vordering is gedurende die afgelope 25 jaar op die gebied van otologiese navorsing gemaak. Belangrike kennis is opgedoen deur middel van tegniese vordering, en die toepassing daarvan vir proefnemings i.v.m. die oor en labirint; fisiologie, fisika, patologie, histologie, biochemie en kliniese navorsing het almal die noodsaaklike navorsers vir die navorsing i.v.m. hierdie hoogs georganiseerde sinsorgane opgelewer. In 'n aantal artikels deur bedrywige navorsers op die gebied van neuro-otologie wat onlangs in die *British Medical Bulletin*<sup>1</sup> verskyn het, word die vordering wat gemaak is, aangetoon.

Die menslike slaapbeen, wat uit baie digte been bestaan waar dit die gehoor- en ewewigssapparaat omsluit, lewer aansienlike tegniese probleme op wanneer 'n reeks histologiese snitte gemaak moet word. Besonderhede aangaande die mate, vorm, kapslag en metallurgiese hoedanighede van die messe wat gebruik word vir mikrotomie van die slaapbeen, word aangedui; spesifikasies vir nitrosellulose, wat as inlêmiddel gebruik word, word ook aangegee.

Die aard en werking van die labarint-vloeistowwe word volgens die lig van onlangse biochemiese gegewens bespreek. Met die oog op die hoër proteïenkonsentrasie in die perilimf in vergelyking met dié in die harsingrugmurgvloeistof, wil dit voorkom of daar 'n half-deurdringbare versperringsvlies by die slakhuis-eindpunt van die slakhuisgang bestaan; die groter proteïenmolekule bly binne die perilimf maar die kleiner elektroliete kan deur die versperring dring. As 'n buite-sellulêre vog is die endolimf enig, daar dit 'n hoë kalium- en lae natriumkonsentrasie bevat; die biochemiese ooreenkoms met binne-sellulêre vloeistof laat die gedagte ontstaan dat die endolimf deur sommige gespesialiseerde afskeidingselle voortgebring word.

Die koms van elektriese metodes om die aktiwiteit by senuwees te registreer, het aan die lig gebring dat die roete van die gehoorsenuwee 'n belangriker aandeel het as sy klaarblyklike funksie om inligting vanaf die binne-oor na die hoër senters oor te dra. Moderne metodes het aangetoon dat die senuweeroete 'n aktiewe

transmitting information from inner ear to the higher centres. Modern methods have shown that the nervous pathway is an active participant in the mechanism of hearing. Considerable transformation of the pattern of activity occurs along the system, and according to frequency and intensity the stimulus is concentrated into particularly related groups of nerve fibres.

The vestibular system, which regulates both movement and posture, has been much investigated and new findings have practical clinical application. Manifestations of vestibular dysfunction have commonly been regarded as indicating disease of the end-organs stimulated, or of their peripheral nervous pathways. The responses, however, are dependent on the functional state of the vestibular nuclei; thus the clinical significance of vestibular test responses needs to be assessed not only in terms of labyrinth and peripheral vestibular neurones but on investigation of various vestibular elements within the central nervous system, in particular the posterior parts of the temporal lobes. The effects of abnormal stimulation of the labyrinth have become an important practical problem in aircraft. The combination of linear and angular accelerations has necessitated much training by pilots to overcome normal reactions to these abnormal stimuli; they have to learn to believe the gyroscopic instruments and discount impulses from the labyrinth.

In a consideration of organic disorders of the eighth-nerve system it is pointed out that distinctive patterns of signs and symptoms are exhibited when there is involvement of (a) the labyrinth, (b) the eighth nerve, and (c) its central connections within the brain stem or (d) in the cerebral hemispheres. As far as the labyrinth is concerned, Menière's disease and positional nystagmus of the benign paroxysmal type are discussed. As regards disorders of the eighth nerve the two conditions of great clinical importance are the neurofibroma and vestibular neuronitis. These four conditions are present in the majority of patients with organic disease of the eighth-nerve system who present themselves for examination. For the details of differential diagnosis and for information on recent advances in our knowledge in neuro-otology the *Bulletin* should be carefully studied. Much research of a difficult nature still needs to be done. Great Britain has been in the forefront of research in this field, particularly since the Medical Research Council began in 1944 to take special interest in it.

1. Neuro-Otology (1956): British Medical Bulletin, 12, (2) 91-157.

aandeel aan die gehoororganisme het. Aansienlike transformasie van die aktiwiteitspatroon geskied langs die stelsel, en volgens frekwensie en intensiteit, word die prikkel in spesiaal verwante groepe senuweeweefsel gekonsentreer.

Die vestibulêre stelsel, wat beide beweging en houding reguleer, is grondig ondersoek en nuwe bevindings is van praktiese kliniese toepassing. Bewyse van verstoorte vestibulêre funksies is algemeen beskou as aanduiding van aandoening van gestimuleerde end-organe, of van hulle perifere senuweeroetes. Die reaksies is egter afhanklik van die funksionele toestand van die vestibulêre kerns; dus moet die belangrikheid van vestibulêre toetsreaksies nie alleen in terme van die labirint en perifere vestibulêre senuweedrade bereken word nie, maar volgens navorsing i.v.m. verskeie vestibulêre elemente binne die sentrale senuweestelsel, veral die agterste gedeeltes van die slaaplobbe. Die uitwerking van abnormale prikkeling van die labirint het 'n praktiese probleem by lugvaart geword. Die kombinasie van lyn- en hoekversnellings het besondere opleiding deur loodse noodsaaklik gemaak ten einde normale reaksies op hierdie abnormale prikkels te oorkom; hulle moet aanleer om hulle op die giroskopiese instrumente te verlaat en senuweeprikkels vanaf die labirint te verontagsaam.

Daar word op gewys dat, met in agneming van die organiese verstorings van die gehoorsenuwee-stelsel, kenmerkende patrone van tekens en simptome aan die dag gelê word wanneer daar aantasting van (a) die labirint, (b) die gehoorsenuwee, en (c) sy sentrale verbindings binne die breinsteel of (d) in die groothersingheltes, is. Wat die labirint aanbetref, word Menière se siekte en die houdingsnistagmus van die goedaardige paroksismale tipe bespreek. Wat verstorings van die gehoorsenuwee betref, is die twee kondisies wat van groot kliniese belang is, die neurofibroom en vestibulêre neuronitis. Hierdie vier toestande is by die oorgrote meerderheid van pasiënte met organiese aandoenings van die gehoorsenuwee-stelsel wat hulle vir ondersoek aanbied, aanwesig. Vir die besonderhede van onderskeidende diagnose en vir inligting aangaande onlangse vordering van ons kennis van neuro-otologie, behoort die *Bulletin* sorgvuldig bestudeer te word. Baie navorsing van 'n moeilike aard moet nog gedoen word. Groot Brittanje was aan die spits van navorsing op hierdie gebied, veral sedert die Medical Research Council in 1944 besonder belang in hierdie saak begin stel het.

1. Neuro-Otology (1956): British Medical Bulletin, 12, (2) 91-157.

### AN APPLE FOR THE DOCTOR

It has always been a mystery to the doctor why some of his patients show such excessive gratitude whereas others display not the least trace of this noble sentiment. It is quite certain that the amount of work bears no relation to the gratitude displayed. Indeed, it is a commonplace that those patients who have had least done for them, whether because they did not require it or because the nature of their disease and the extent of our knowledge

would not permit us to do more to help them, are often the most grateful. The doctor is often embarrassed by the effusive thanks, publicly expressed, of a patient who has been saved from the hazards of a sebaceous cyst or whose septic toe has received skilful but very pedestrian attention. On the other hand, those patients who have given him an extraordinary degree of worry and on whose shoulders must ultimately rest the burden of

responsib  
very seld  
attention  
people ar  
will be v  
disregard  
the reacti  
at differ  
can also  
The er

Every  
succumb  
The outb  
'summer  
most par  
An an  
diarrhoe  
main fa  
the shig  
infantile  
(marasm  
part in  
responsi  
rheoa d

Until th  
decades  
most in  
in the  
States.<sup>1</sup>  
among  
aliments  
used th  
believed  
such n  
apathy,  
(toxisch  
which v  
toxin.

Every  
large n  
month  
summe  
until t  
Dudfiel  
from d  
rate fr  
than in  
epidem  
teneme  
socio-e  
by Sch

responsibility for their medical man's coronary attack, very seldom display any gratitude at all, but accept his attention as of right. It is also not true that certain people are grateful and others are not: the same patient will be very grateful for some services and completely disregard others. Similarly, there is no consistency in the reaction of the individual patient to the same doctor at different times; so it appears that the personal factor can also be excluded.

The embarrassment of receiving presents to which

most of us are occasionally subjected, often arouses in us feelings of gratitude combined with wonder. The gratitude is a natural reaction. The wonder is that the patient should feel grateful at all and is combined with a fear that the account rendered has possibly not been large enough. The doctor must tread the narrow path between rendering a fair fee (which seems to extinguish gratitude) and undercharging (which apparently has not any effect in stimulating it). There is still much to be learnt from the close study of human nature.

## THE AETIOLOGY OF SUMMER DIARRHOEA

E. KAHN, M.D., M.R.C.P.E., D.C.H.

*Baragwanath Hospital, Johannesburg*

Every summer nearly a thousand African infants succumb to diarrhoeal disorders in Johannesburg. The outbreaks responsible for these deaths resemble the 'summer diarrhoea' reported many years ago from most parts of Europe and America.

An analysis of the clinical data of 600 children with diarrhoea reveals that the fatalities are attributable to 2 main factors, namely (1) infection with organisms of the shigella, salmonella and proteus groups, and (2) infantile malnutrition (kwashiorkor) or undernutrition (marasmus). Parenteral infection plays little or no part in the causation of summer diarrhoea, but it is responsible for the majority of the cases of mild diarrhoea during the winter months.

### HISTORICAL REVIEW

Until the beginning of this century, and for two or three decades thereafter, summer diarrhoea was one of the most important causes of the high infantile mortality in the industrial slums of Europe and the United States.<sup>1-4</sup> Summer diarrhoea was known by many names, among which were cholera infantum<sup>5</sup>, cholera<sup>6</sup>, alimentary intoxication<sup>7</sup> and toxicosis<sup>8</sup>. Most authors used these terms to denote a clinical entity which was believed to differ from non-specific gastro-enteritis by such manifestations as muscular weakness, mental apathy, clouding of consciousness, deep respiration (*toxische Atmung*) and circulatory collapse, symptoms which were attributed to the action of a hypothetical toxin.

Every year 'toxic' cases of diarrhoea appeared in large numbers during the month of July, i.e. about 1 month after atmospheric temperatures had risen to summer levels. Once started, an epidemic continued until the arrival of cooler weather in September.<sup>2-9</sup> Dudfield<sup>10</sup> states that up to 4ths of the annual deaths from diarrhoea occurred during this period. The death rate from 'toxic' diarrhoea was higher in hot summers than in cool and rainy ones.<sup>2,11</sup> Focal points of the epidemics were the ill-ventilated and overcrowded tenements of the industrial slum areas.<sup>6,12,13</sup> The socio-economic aspects of the epidemics are discussed by Schwarz.<sup>14</sup> The liability of infants to summer diarrhoea

stood in inverse proportion to the educational and social level of the parents. The worst epidemics occurred in towns where women were employed in industries and where infants were weaned from the breast at an early age to allow their mothers to resume their role as bread-winners.

Summer diarrhoea was stated to be commonest in infants aged between 3 months and 2 years.<sup>12,15</sup> Boys were affected more commonly than girls.<sup>16</sup> All authors agreed that the death rate was highest in bottle-fed infants who had already developed malnutrition or marasmus before the onset of hot weather.

On the other hand, summer diarrhoea was rare in children living in rural districts,<sup>6,12,17</sup> in breast-fed infants,<sup>4, 10</sup> and in the neonatal age-group.<sup>2</sup>

Views on the cause of the epidemics differed widely, and only a few of these can be mentioned here. Bacterial food infection was suspected on account of the high mortality among artificially fed infants. Over a period of 50 years nearly all known intestinal pathogens and commensals were at one time or other incriminated. However, they were all rejected, because none of them fulfilled the postulates of Koch: they could not always be isolated from the stools of children suffering from summer diarrhoea and they did not always cause 'toxicity' in susceptible hosts. For example, *Shigella flexneri* was isolated not only from the stools of the 'toxic' patients, but also from children who displayed no signs of 'toxicity'. For these reasons the majority of the Continental and American paediatricians came to the conclusion that summer diarrhoea was not an infectious disease. Attempts were made to trace the origin of the hypothetical toxin to break-down products of contaminated food. However, 'toxic' diarrhoea could not be produced experimentally in children or animals fed on such contaminated food or substances isolated from it.<sup>18</sup>

Many German paediatricians believed that 'toxic' diarrhoea was caused by heat stroke,<sup>19, 20</sup> but experimental overheating of children and animals did not result in diarrhoea or 'toxicity'.<sup>21, 22</sup> Other equally fruitless investigations were concerned with the possible causative role of endogenous toxins, metabolites and parenteral infection.



The most widely known and accepted theory of the cause of summer diarrhoea was that propounded by Finkelstein in 1907.<sup>7</sup> He based his views on the observation that the condition was found almost exclusively in poorly nourished infants. In his opinion summer diarrhoea was a manifestation of 'metabolic breakdown' in a child whose tolerance to food had been lowered by atmospheric heat and previous dietetic errors.

This theory gained wide support because Finkelstein achieved some success with a new dietetic approach to summer diarrhoea. Previously, prevention and treatment had been based mainly on milk-free cereal paps which were reputed to be easily digestible.<sup>12, 17, 23</sup>

Finkelstein introduced an acidified-milk formula with a high protein-content, low carbohydrate and low fat. This food proved to be of value in the treatment of milder cases of summer diarrhoea and it prevented outbreaks in threatened communities. Brady<sup>21</sup> gives a dramatic account of the success of this diet in preventing epidemics in a large orphanage.

The search for the cause of summer diarrhoea ended when Marriott<sup>25</sup> showed that the 'toxicity', the hallmark of the clinical entity of summer diarrhoea, was due to dehydration and associated metabolic and vascular derangements.

In Europe and the United States there was a rapid decline in the severity of the summer epidemics during the 2nd decade of this century,<sup>10, 26</sup> and they are unknown today in most parts of the world where the standard of living is reasonably high. Commonly, sole credit for the disappearance of summer diarrhoea is given to improvements in sanitation and personal hygiene.

#### MATERIAL AND METHODS

In this investigation the term summer diarrhoea does not denote a clinical entity, but an epidemic of severe cases of diarrhoea occurring during the summer months. The term *diarrhoeal disorders* is used synonymously with and in preference to *gastro-enteritis*, *enteritis*, *dysentery*, *toxemia* and *alimentary intoxication*.

Epidemiological information is drawn from (a) compulsory registration of deaths, (b) attendance records of out-patient clinics, and (c) admission of patients to Baragwanath Hospital.

The clinical part of the investigation is based on the examination of 600 children with diarrhoea, and these are divided into 3 groups.

Group I contains 200 consecutive admissions to hospital.\* All these patients were seen during mid-summer; over 90% were severely dehydrated and therefore correspond to the patients described by the older writers as suffering from summer diarrhoea, cholera infantum or alimentary intoxication.

Group II consists of 200 unselected children receiving treatment for diarrhoea at an out-patient clinic during summer. It differs from Group I in that it comprises patients with diarrhoea of all grades of severity.

Group III is formed by 200 unselected children with

\* Owing to shortage of accommodation only severely dehydrated children could be admitted to the wards (See Table IV)

diarrhoeal disorders of all grades of severity treated at the same clinic during the winter.

The nutritional state of the patients was graded as follows:

(a) *Excellent nutrition*: On clinical assessment it was considered unlikely that the nutrition of the child could be improved by additions to the diet.

(b) *Good nutrition*: The nutritional state was judged to be sub-optimal and likely to improve with additions to the diet.

(c) *Fair nutrition*: Mild signs of malnutrition were present, such as atrophic scalp hair, receding hair-line at the temples, depigmented patches over the cheeks and mild cheilosis.

(d) *Poor nutrition*: Clinical signs of advanced malnutrition were present, namely nutritional oedema, nutritional dermatosis and severe muscular wasting. Children with severe undernutrition whose weight was less than 60% of the expected average weight for age, were included in this category although they did not necessarily show signs of malnutrition.

(e) *Very poor nutrition*: The children were practically moribund from malnutrition or marasmus.

In this study *parenteral infection* always means upper-respiratory-tract infection, including acute otitis media of recent origin.

The bacteriological investigations were carried out at a routine laboratory. Specimens were obtained by means of rectal swabs which were planted on SS agar and desoxycholate citrate agar. Control swabs were obtained from 100 children who were suffering from surgical complaints, but not from diarrhoea. Only one swab was taken from each patient and each control. Limited laboratory facilities precluded the examination of consecutive cases in Group II and III, but the greatest care was taken to obviate biased sampling.

Salmonella organisms mentioned in this paper do not include *Salmonella typhi*.

#### RESULTS

##### Epidemiology

Table I shows that in 1951 there were 5,658 deaths from all causes in the African population of Johannes-

TABLE I. VITAL STATISTICS OF THE AFRICAN POPULATION OF JOHANNESBURG, 1951

Deaths from diarrhoeal disorders:				
Total	..	..	1,152	(29)
Under 2 years	..	..	1,064	(24)
Under 1 year	..	..	829	(?)
Total population	..	..	355,000	(311,000)
Registered births	..	..	8,779*	(8,455)
Total deaths	..	..	5,658	(2,715)
Deaths under 1 year	..	..	2,140	(232)

Figures in parenthesis refer to the European population of the same area.

\* Corrected figure about 9,500.

burg, and that diarrhoeal disorders accounted for 1,152 of these. The death rate from diarrhoeal disorders was highest in the younger age groups; thus 1,064 of the 1,152 deaths occurred in children under 2 years of

age, wh  
10th chi  
reaching

Table  
in the c  
About  
period

TABLE II.

July ...  
August ...  
September ...  
October ...  
November ...  
December ...  
January ...  
February ...  
March ...  
April ...  
May ...  
June ...

Total ...

A-Ch  
B-Ch  
C-Ch  
Figure  
burg.

Souther  
disorde  
midwin  
this res  
in wint  
section  
disorde  
that far  
the sur

Fig.  
children  
clinics.  
commo  
receive  
attenda  
ber, an  
about  
of the  
fairly r  
with th

The  
admiss  
almost  
from 1  
increas  
was m  
were r  
the cli

Fig.  
admiss  
atmosph  
levels a  
and th  
begun

age, who formed only 5-6% of the community. Every 10th child succumbed to an attack of diarrhoea before reaching the age of 1 year.

Table II demonstrates the marked seasonal variations in the occurrence of deaths from diarrhoeal disorders. About 80% of the fatalities were reported during the period October to March, the 6 hot months in the

TABLE II. SEASONAL VARIATIONS IN DEATHS FROM DIARRHOEAL DISORDERS

	A	B	C	Total
July .. ..	9	17	1	27 (1)
August .. ..	3	21	8	32 (3)
September ..	11	23	2	36 (2)
October .. ..	8	66	9	83 (1)
November ..	6	97	7	110 (1)
December ..	7	165	10	182 (8)
January .. ..	7	156	9	172 (2)
February ..	6	137	14	157 (3)
March .. ..	4	148	11	163 (3)
April .. ..	12	75	11	98 (2)
May .. ..	6	45	5	56 (3)
June .. ..	5	30	1	36 (1)
Total .. ..	84	980	88	1,152 (31)

A—Children under 1 month of age.

B—Children aged between 1 month and 2 years.

C—Children over 2 years of age and adults.

Figures in parenthesis refer to European children in Johannesburg.

Southern hemisphere. The mortality from diarrhoeal disorders was 10 times higher in midsummer than in midwinter. Only the neonatal age-group differed in this respect, the mortality being the same in summer as in winter. It should be noted that in the European section of the population deaths from diarrhoeal disorders were uncommon throughout the year, and that fatalities from these causes did not increase during the summer months.

Fig. 1 shows the monthly attendances of African children treated for diarrhoea at 2 large out-patient clinics. It will be noted that diarrhoeal disorders were common even in midwinter, when 200 patients per month received attention at each of these institutions. However, attendances rose continuously in September and October, and they attained a maximum in November, when about 1,000 cases of diarrhoea were dealt with at each of the 2 clinics. In the succeeding months there was a fairly rapid decline in the number of children presenting with this type of illness.

The same seasonal changes could be observed in the admissions to Baragwanath Hospital, which caters almost exclusively for Africans. Monthly figures rose from 17 in midwinter to 224 in midsummer. However, increase and decrease in the number of hospital cases was more gradual than at the clinics, and peak figures were reached in December, i.e. a month later than at the clinics.

Fig. 1 shows clearly that neither clinic attendances nor admissions to hospital could be correlated directly to atmospheric temperatures. The latter rose to maximum levels about one month before the epidemic commenced, and they remained high long after the epidemic had begun to subside. Table III indicates that a larger

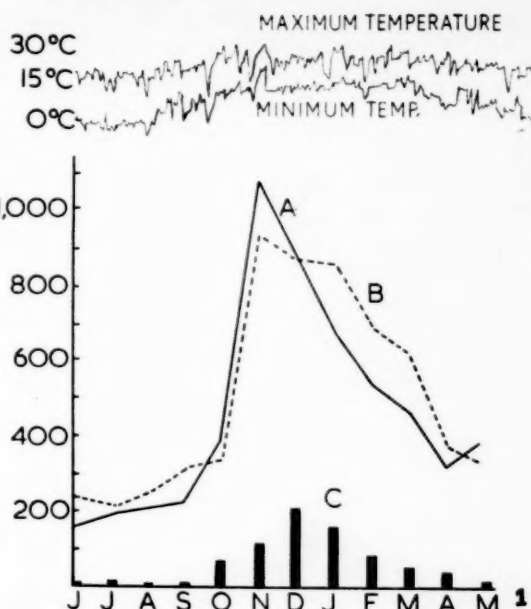


Fig. 1. Monthly fluctuations in the number of patients treated for diarrhoeal disorders at clinics A and B, in relation to maximum and minimum atmospheric temperatures. C: Admissions to paediatric wards.

TABLE III. INFLUENCE OF SANITATION ON THE PREVALENCE OF SEVERE CASES OF DIARRHOEA

Township	Total inhabitants	Sanitation	Severe cases of diarrhoea admitted to hospital
Or. .. ..	70,000	Good .. ..	31
J.-M. .. ..	78,000	Bad in parts ..	62
Sh. .. ..	27,000	Very bad .. ..	28
Kl. .. ..	9,350	Very bad .. ..	21
Pi. .. ..	20,000	Bad in parts ..	19
Other areas ..	—	Mixed .. ..	39
Total .. ..			200

proportion of the African children admitted to Baragwanath Hospital came from areas with poor sanitation.

#### Clinical Aspects

The clinical aspects are summarized in Tables IV, V and VI and in Figs. 2, 3 and 4.

Table IV shows the main differences between the severest cases, which are contained in Group I, and cases of all grades of severity, represented by Groups II and III. Males preponderated in Group I—there were 119 boys against 81 girls—whereas in Group II and in Group III the sexes were practically equally represented. The average age of the patients was lower in Group I than in the other two groups—of patients aged 8 months or less there were 108 in Group I, 39 in Group II and 48 in Group III. Nutritional disturbances were commonest in Group I, 112 patients being classed as malnourished or marasmic; there were only 50 malnourished

TABLE IV. CLINICAL DATA OF 600 CHILDREN SUFFERING FROM DIARRHOEA

	Group I	Group II	Group III
State of Hydration			
Normal hydration .. .. .	0	180	193
Slight dehydration .. .. .	12	12	5
Severe dehydration .. .. .	188	8	2
Males .. .. .	119	105	101
Females .. .. .	81	95	99
Age Distribution			
Birth to 2 months .. .. .	10	3	6
over 2 months to 4 months .. .. .	39	10	9
over 4 months to 6 months .. .. .	30	13	12
over 6 months to 8 months .. .. .	29	13	21
over 8 months to 10 months .. .. .	17	21	20
over 10 months to 12 months .. .. .	19	20	14
over 12 months to 14 months .. .. .	15	22	12
over 14 months to 16 months .. .. .	9	15	19
over 16 months to 18 months .. .. .	11	27	12
over 18 months to 2 years .. .. .	11	34	30
over 2 years to 3 years .. .. .	7	15	26
over 3 years .. .. .	3	7	13
State of Nutrition			
Excellent .. .. .	6	22	43
Good .. .. .	22	63	55
Fair .. .. .	60	64	52
Poor .. .. .	76	37	33
Very poor .. .. .	36	13	12
Number of Twins in the Series .. .. .	18	6	8
Fully Breast-fed .. .. .	20	8	12
Duration of Diarrhoea before Examination			
0 to 8 days .. .. .	179	167	150
8 to 14 days .. .. .	8	14	34
over 14 days .. .. .	13	19	16

Group I: 200 consecutive admissions to Baragwanath Hospital.

Group II: 200 unselected clinic patients seen in summer.

Group III: 200 unselected clinic patients seen in winter.

or marasmic children in Group II and 45 in Group III. The state of nutrition was satisfactory in 28 children in Group I, but there were 85 well nourished patients in Group II and 98 in Group III.

There were 18 twins in Group I, 6 in Group II and 8 in Group III.

Fully breast-fed infants numbered 20 in Group I, 8 in Group II and 12 in Group III. These differences may be due to the fact that the children who could reasonably be expected to be fully breast-fed, i.e. those under 6 months of age, numbered 79 in Group I, 26 in Group II and 27 in Group III.

In all three groups less than 10% of the patients had been suffering from diarrhoea for more than 14 days when they were first examined.

Height/age ratios of the patients are shown in Fig. 2 (Group I), Fig. 3 (Group II) and Fig. 4 (Group III). On the average, the height of the children in Group I was 1-1½ inches less than that of the children of corresponding age in the other two groups. In addition, there was a higher incidence of grossly stunted children in Group I, which contained 18 infants, aged from a few weeks to over 4 months, who measured 20 inches or less, and who were almost certainly born prematurely. There were

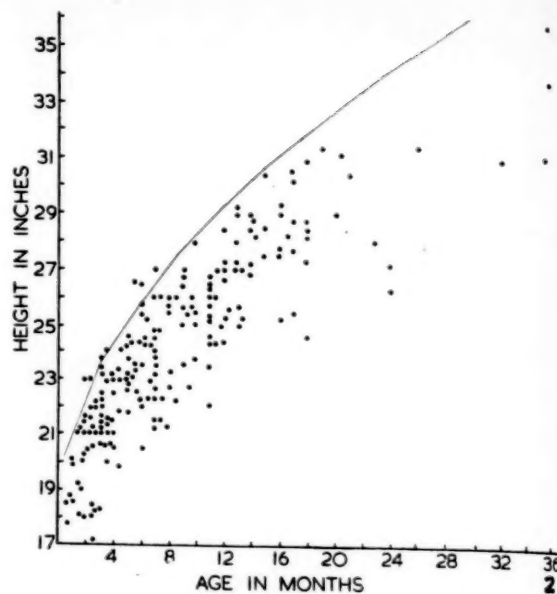


Fig. 2. Height-age ratio of patients in Group I (ward cases in summer). Three patients over 3 years of age are not shown. The curve in this figure and in Fig. 3 and Fig. 4 represents the average height of American children.

only 3 of these stunted children in Group II and 4 in Group III.

Table V presents a summary of the results of stool cultures on media favouring the growth of shigella and salmonella organisms. These pathogens were found in 75 children in Group I (37.5%), in 45 children in Group

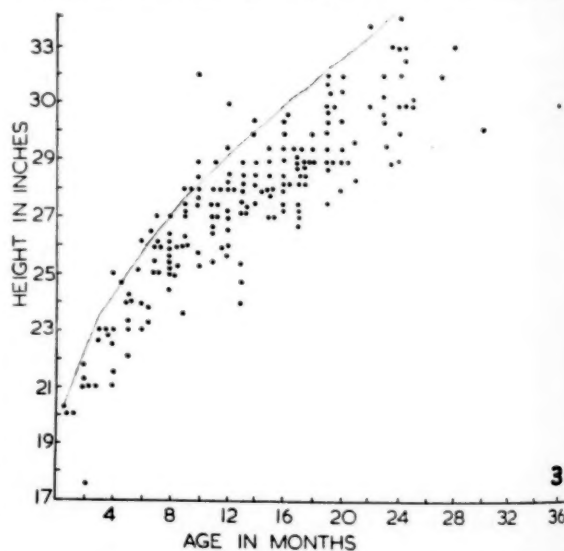


Fig. 3. Height-age ratio of patients in Group II (out-patients in summer). Seven children over 3 years of age are not shown.

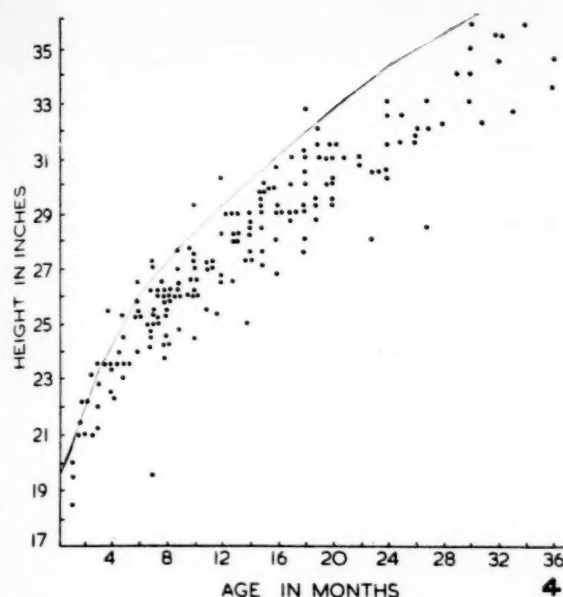


Fig. 4. Height-age ratio of patients in Group III (out-patients in winter). Thirteen patients over 3 years of age are not shown.

TABLE V. GROWTH OF SHIGELLA SALMONELLA AND PROTEUS ORGANISMS ON DESOXYCHOLATE-CITRATE AND SS AGAR

	Group I	Group II	Group III	Controls
Shigella infection ..	56	26	12	Nil
<i>Shigella flexneri</i> ..	35	14	8	
<i>Shigella sonnei</i> ..	15	11	1	
<i>Shigella newcastle</i> ..	5	1	3	
<i>Shigella schmitz</i> ..	1	Nil	Nil	
Salmonella infection ..	14	15	4	2
Shigella and salmonella organisms in the same specimen ..	5	4	Nil	Nil
<i>B. proteus</i> * ..	59	45	10	18

Groups I, II and III are the same as in Table IV. Control group consists of 100 surgical cases without diarrhoea.

\* The presence of *B. proteus* was not reported if shigella or salmonella organisms were isolated from a specimen.

II (22.5%) and in 16 children in Group III (8.0%). Organisms of the shigella group were 2-3 times commoner than salmonella organisms. *Shigella flexneri* was the most prevalent individual strain. Simultaneous infection with shigella and salmonella organisms was proved in 5 patients in Group I and in 4 patients in Group II.

*B. proteus* was found in 59 of 125 children in Group I, in 45 of 145 children in Group II and in 10 of 184 children in Group III. (The laboratory did not report the presence of *B. proteus* in patients from whom shigella or salmonella organisms had been isolated.)

From the 100 controls without diarrhoea no shigella

organisms were isolated, but there were 2 symptomless carriers of salmonella organisms and 18 children harboured *B. proteus*.

The role of parenteral infection as a cause of diarrhoea can be recognized from the data in Table VI. It will be noted that in the patients examined during the summer (Groups I and II) upper-respiratory-tract infection was found in only one quarter of the patients, and

TABLE VI. ONSET OF UPPER-RESPIRATORY-TRACT INFECTION IN RELATION TO ONSET OF DIARRHOEAL ATTACK

	Group I	Group II	Group III
Diarrhoea following upper-respiratory-tract infection ..	13	18	108
Diarrhoea and upper-respiratory-tract infection starting simultaneously ..	9	8	22
Diarrhoea preceding upper-respiratory-tract infection ..	19	22	22
Time of onset of upper-respiratory-tract infection uncertain ..	12	16	12
Total number of children with upper-respiratory-tract infection ..	53	64	164

Groups I, II and III are the same as in Tables IV and V.

there was no correlation between the onset of upper-respiratory-tract infection and the onset of diarrhoea. However, in the patients seen during the winter (Group III) upper-respiratory-tract infection was present in 82% of cases, and in the great majority of these the diarrhoea started *after* the commencement of the upper-respiratory-tract infection. The reverse relationship, namely diarrhoea starting before the onset of upper-respiratory-tract infection, existed in only 22% of the children examined during the winter.

#### DISCUSSION

Registration of deaths, and hospital attendances, in the African population of Johannesburg indicate that the epidemiological phenomenon of summer diarrhoea equals in severity and extent the outbreaks formerly encountered in the slums of Europe and the United States. Thus, about 10% of African children succumb to diarrhoeal disorders during their first year of life, and about 80% of the deaths occur during the 6 warm months of the year.

The epidemic described above started 4 weeks after atmospheric temperatures had reached summer levels and it attained a climax during the following 2 months. It then subsided gradually, long before atmospheric temperature declined. Thus, despite some differences in climatic conditions, local epidemics show the same trends in waxing and waning as those seen many years ago in the Northern hemisphere.

Information from out-patient clinics, which are frequented by Africans suffering from diarrhoeal disorders of all grades of severity, indicates that these complaints are also common during the winter months. However, there are few deaths in winter, and few patients require admission to hospital. Therefore, the summer epidemics are characterized by a disproportionately large number of severe cases.

In order to detect the factors responsible for the high



incidence of severe cases during the summer, 200 severely ill children were compared with 200 milder cases seen during the same time of the year, and with 200 cases treated during the winter season. It was found that among the severe cases there was some preponderance of male children, that the majority of these children were less than 8 months old, and that malnutrition, marasmus, and intestinal infection with certain organisms, was common.

#### Sex Distribution

The predominance of males among the severely ill children was not a chance finding. It has been observed at this hospital in other years and it has been noted by writers overseas.<sup>16, 27-29</sup> Out-patient registers reveal that the attack rate of diarrhoeal disorders is the same in boys and in girls. It is not known why boys suffer more severely than girls when they contract diarrhoeal disorders.

#### Age Incidence

In unhygienic environments diarrhoeal disorders occur in persons of all ages. However, in the present series fatalities were confined almost entirely to children under 2 years of age, and over 50% of the children admitted to hospital were under 8 months of age. Therefore, severe attacks of diarrhoea are confined to very young children. This can be explained by the relatively great fluid-requirement of small infants, which results in marked intolerance to the fluid losses associated with diarrhoeal disorders. An additional factor may be lack of immunity, infants less than 12 months old not having encountered intestinal pathogens before.

There were no seasonal variations in the mortality from diarrhoeal disorders in the neonatal age-group. Most of these children are breast-fed and, therefore, protected from contact with contaminated food. The fact that the neonatal age-group is not affected by summer diarrhoea appears to indicate that pathogenic strains of *B. coli* and, viruses which are thought to cause neonatal diarrhoea, do not play an important part in the causation of the summer epidemics.

#### Nutrition

The liability of malnourished and marasmic children to severe attacks of diarrhoea has once more been confirmed. This predisposition is probably due to a variety of factors, of which only 2 will be alluded to here. Firstly, gastric hypochlorhydria is common in malnourished and marasmic children,<sup>30-32</sup> and this facilitates infection with intestinal pathogens. Secondly, in Johannesburg infantile malnutrition and marasmus are caused by cereal diets, which have a low sodium-content.<sup>33</sup> A negative sodium-balance is likely to result, if children receiving these diets contract diarrhoeal disorders.

The low resistance of malnourished and marasmic children to diarrhoeal disorders cannot be attributed to impaired production of antibodies, because at this hospital antibody titres against shigella strains could not be correlated to the state of nutrition of the patients.<sup>34</sup> Other investigations concerning antibody production in malnourished and undernourished individuals agree with these findings.<sup>35, 36</sup>

Poor nutrition was responsible for the large number of twins and premature infants among the severe cases (premature infants are represented by patients measuring less than 20 inches in length). Early weaning is a frequent occurrence with these children, and the local tendency to feed weanlings on cereals then results in severe malnutrition and marasmus.

It may be argued that the high incidence of malnutrition and marasmus among the severe cases was caused by prolonged diarrhoea. This is not correct, because 90% of patients had suffered from diarrhoea for less than 14 days when first examined, whereas malnutrition and retardation of growth become apparent only after many weeks or months of faulty feeding. The histories of the great majority of the children provided confirmatory evidence that faulty feeding had nearly always preceded the onset of diarrhoea.

#### Intestinal Infection

Among the severe cases of diarrhoea shigella and salmonella infection was found in 37.5%; but conditions were not ideal for the detection of all the patients affected by these organisms. From a trial with different methods it was concluded that probably 50% of the severe cases suffered from salmonella or shigella infection. Among the out-patients seen during the same time of the year, infection with these pathogens was considerably less frequent, and these organisms were rarer still in children suffering from diarrhoea during the winter months. Therefore, infection with shigella and salmonella organisms emerges as one of the most potent factors in the aetiology of summer diarrhoea.

*B. proteus* was present more frequently in the stools of the severe cases than in the milder ones, indicating that this organism also plays a part in the causation of the summer epidemics.

The role of pathogenic strains of *B. coli* was not studied in this enquiry. However, in Pretoria<sup>37</sup> these organisms were found in 48% of children admitted to hospital with severe diarrhoea during the summer; but they were also present in 20% of normal controls during the winter. Therefore, it does not seem likely that the importance of these bacteria in causing severe diarrhoea in summer exceeds that of the above-mentioned *B. proteus* strains.

Upper-respiratory-tract infection was detected in only one quarter of the severe cases during the summer, and no definite correlation could be established between the onset of diarrhoea and the onset of upper-respiratory-tract infection. However, in winter upper-respiratory-tract infection was present in about 80% of children suffering from diarrhoea, and the diarrhoea followed the onset of upper respiratory tract infection in the great majority of cases. It only rarely preceded it. However, severe diarrhoea was uncommon in winter, and one may conclude from this that parenteral infection causes mild diarrhoea and that it does not contribute materially to the occurrence of severe cases during the summer.

#### High Atmospheric Temperature

The phenomenon of summer diarrhoea cannot be explained by a direct noxious effect of high atmospheric temperatures on young children, postulated by workers

in prev  
still occ  
mics in  
upon t  
contin  
High  
to the c  
is no d  
pathoge  
growth  
sweatin  
sufferin  
This is  
above,  
severe  
marked  
children  
ture by  
become  
tend to  
to child

This in  
factors  
summer  
organis  
Few ma  
of diarr  
nourish  
infectio

The v  
severe  
of Joh  
disorde  
increas  
rate of  
is unkn  
children  
public  
that the  
is cons  
fact tha  
suggest  
in mos  
better

In E  
put an  
of the  
problem  
higher  
tion of  
infants

Nearly  
disorde  
that sin  
the Un  
They s  
mer w  
maras



in previous generations. Otherwise epidemics should still occur in Europe and the United States, and epidemics in this country should commence immediately upon the arrival of hot weather and they should continue unabated until the arrival of cool weather.

High atmospheric temperatures probably contribute to the occurrence of severe cases in several ways. There is no doubt that they assist in the spread of intestinal pathogens by flies and that they accelerate the bacterial growth in infected food. It might also be suspected that sweating constitutes an additional burden to children suffering losses of water and electrolytes in the stools. This is probably not a factor because, as pointed out above, malnourished children are particularly prone to severe diarrhoea, and it has been shown that there is marked impairment of sweating in malnourished children.<sup>38</sup> However, inability to control body temperature by sweating causes malnourished children to become pyrexial in hot weather, and this pyrexia will tend to lower gastric acidity,<sup>39, 40</sup> a distinct disadvantage to children living in insanitary surroundings.

#### CONCLUSIONS

This investigation has shown that the most important factors in the causation of severe diarrhoea during the summer are infection with shigella and salmonella organisms, and infantile malnutrition and marasmus. Few malnourished infants seem to escape severe attacks of diarrhoea during the summer, while many of the well-nourished children contract shigella and salmonella infection without becoming very ill.

The vital statistics in Table I show that epidemics of severe diarrhoea do not affect the European population of Johannesburg: in them the mortality from these disorders is low throughout the year, and there is no increase in the fatalities during the summer. The attack rate of diarrhoeal disorders in the European population is unknown, because the great majority of European children are treated by private practitioners and not in public institutions. However, enquiries have established that the morbidity from diarrhoea, including shigellosis, is considerably higher in summer than in winter. The fact that this is not reflected in an increased mortality suggests the presence of a better resistance than is found in most African infants, and this is probably due to a better state of nutrition.

In England, improved living conditions alone did not put an end to summer diarrhoea in the poorer sections of the population.<sup>2</sup> Similarly the solution of the local problem lies, in addition to improved sanitation and higher standards of personal cleanliness, in the propagation of better feeding methods for artificially-fed African infants.

#### SUMMARY

Nearly a thousand African infants succumb to diarrhoeal disorders every summer in Johannesburg. It is shown that similar summer epidemics occurred in Europe and the United States until the third decade of this century. They started about 1 month after the arrival of hot summer weather, they affected mainly malnourished and marasmic infants in the industrial slums, and outbreaks

could be prevented by feeding infants on acidified milk with a high protein content.

In this paper an attempt is made to detect the factors which render African infants in Johannesburg liable to severe attacks of diarrhoea during the summer. For this purpose 200 children admitted to hospital with severe diarrhoea during the summer are compared with 400 children suffering mostly from mild attacks of diarrhoea. It is shown that severe cases come usually from areas with unsatisfactory sanitation. Males preponderate among the severe cases. Many of the children who are severely ill are at the same time malnourished or wasted, and a high percentage suffer from infection with shigella and salmonella organisms.

The role of malnutrition and marasmus in the causation of the epidemics is discussed. The influence of *B. proteus* and pathogenic strains of *B. coli* is assessed. It is shown that upper-respiratory-tract infection is not concerned in the causation of summer diarrhoea, but that it is probably responsible for the majority of the milder cases of diarrhoea seen during the winter.

I wish to thank Dr. J. W. Scott-Millar and his staff of the City Health Department for the vital statistics, Drs. E. N. Ellis and L. E. Eisenberg for their help in collecting information on outpatients, and Dr. R. Cassel and Mr. R. G. Boardman of the South African Institute for Medical Research for the bacteriological investigations.

#### REFERENCES

- Herman, C. (1907): Arch. Pediat., **24**, 522.
- Still, G. F. (1909): *Common Disorders and Diseases of Childhood*, p. 210. London: Churchill.
- Carr, W. L. (1912): Arch. Pediat., **29**, 404.
- Davis, W. H. (1912): *Ibid.*, **29**, 477.
- Rush, B. (1789): *op. cit.* Abt. I. A. (1924): *Pediatrics by Various Authors*, Vol. III, p. 317. Philadelphia, Saunders.
- Bloch, C. E. (1921): *Acta Paediat.* (Uppsala), **1**, 1.
- Finkelstein, H. (1907): Jb. Kinderheilk., **65**, 1.
- Pfaundler, M. and Schlossmann, A. (1931): *Handbuch der Kinderheilkunde*, 4th ed., vol. III, p. 156. Berlin:
- Gafafer, W. M. (1930): Amer. J. Hyg., **11**, 535.
- Dudfield, R. (1911-12): Proc. Roy. Soc. Med., vol. 5, part 2, Epidemiol. Sec., p. 99.
- Ashby, H. and Wright, G. A. (1905): *Diseases of Children*, 5th ed., p. 93. London: Longmans, Green & Co.
- Van Derslice, J. W. (1907): Arch. Pediat., **24**, 55.
- Stern, A. (1911): *Ibid.*, **28**, 287.
- Schwarz, H. (1911): *Ibid.*, **28**, 668.
- Wood, G. B. (1855): *Treatise on the Practice of Medicine*, 4th ed., p. 703. Philadelphia: Lippincott.
- Smith, E. (1884): *Practical Treatise on Diseases in Children*, p. 642. London: Churchill.
- Taylor, J. M. and Wells, W. H. (1899): *Manual of Diseases of Children*, p. 189. London: Churchill.
- Bernheim-Karrer (1916): Z. Kinderheilk., **13**, 435.
- Meinert (1891): Ther. Mh., **5**, 520, 567 and 623.
- Rietschel, H. (1911): Mschr. Kinderheilk., **9**, 39. Summary in Amer. J. Dis. Child (1911), **1**, 462.
- Bleyer, A. (1915): J. Amer. Med. Assoc., **65**, 2161.
- Ylppö, A. (1923): Acta Paediat. (Uppsala), **3**, 213.
- Kerley, C. G. (1906): Brit. Med. J., **2**, 927.
- Brady, J. M. (1910): Arch. Pediat., **27**, 426.
- Marriott, W. M. (1920): Amer. J. Dis. Child., **20**, 461.
- Sheldon, W. (1945): *Diseases of Infancy and Childhood*, 4th ed., p. 94. London: Churchill.
- Berkeley, J. (1948): Arch. Dis. Childh., **23**, 114.
- Hinden, E. (1948): *Ibid.*, **23**, 27.
- Giles, C., Sangster, G. and Smith, J. (1949): *Ibid.*, **24**, 45.
- Clark, T. W. (1911): Arch. Pediat., **28**, 648.
- Chievitz (1921): Acta Paediat. (Uppsala), **1**, 416.
- Wills, L. and Paterson, D. (1926): Arch. Dis. Childh., **1**, 232.

33. McCance, R. A. (1936): *Lancet*, **1**, 643.
34. Kahn, E. and Cassel, R. Unpublished work.
35. Zoutendyk, A., Anderson, C. G., Kahn, E. and Stein, H. (1955): *Lancet*, **1**, 1075.
36. *Wuppertal 1946-9 Studies of Undernutrition*. Spec. Rep. Ser. Med. Res. Coun. No. 275, p. 193. London: H.M. Stationery Office.
37. Coetzee, J. N. and Pretorius, H. P. J. (1955): *S. Afr. J. Lab. Clin. Med.*, **1**, 188.
38. Kahn, E. and Walker, A. R. P. (1954): *Pediatrics*, **14**, 659.
39. Meyer, J., Cohen, S. J. and Carlson, A. J. (1918): *Arch. Intern. Med.*, **21**, 354.
40. Blickenstaff, D. and Grossman, M. I. (1950): *Amer. J. Physiol.*, **160**, 567.

## ANTIBIOTIC DEAFNESS

OTTO POPPER, M.B., CH.B., F.R.C.S.\*

Senior Surgeon, Ear, Nose and Throat Departments, Johannesburg Hospital and Transvaal Memorial Hospital for Children, Johannesburg

From the Department of Surgery, University of the Witwatersrand

This paper deals with a type of deafness at present unnamed and unclassified. It is a preliminary communication made with the object of putting us on the alert, in the hope that we may, by simple and timely measures, forestall a large crop of cases of conductive deafness in the years to come, and remove a reproach to otology of the mid-twentieth century.

Children present the most important and the most difficult problem. They rarely complain of deafness. It is only by the observant mother that the condition is brought to our notice. She maintains that, although the earache was cured overnight, she is positive that the child is hard of hearing, because she has to raise her voice where previously this was unnecessary.

A more explanatory title for this type of deafness would be 'antibiotic effusion deafness', in order to distinguish it from streptomycin deafness.† This survey excludes the effect of streptomycin. Antibiotic deafness, so far unnamed and unclassified, is a conductive deafness

which is unaccompanied by vertigo and is, moreover, reversible. It is the result of the great potency and heavy dosage of antibiotics. We are dealing with a paradox—the efficiency of a curative agent becomes a menace to the function of hearing.

*It must be accepted that antibiotics have changed the face of medicine. What is not appreciated to the same extent is that antibiotics have also changed the character of disease.*

### THE PATTERN OF ANTIBIOTIC DEAFNESS

The broad pattern of antibiotic deafness conforms to a very simple sequence of events. The patient complains of deafness or tinnitus, or both. In the case of a child, the observant mother states emphatically that the child does not hear as well as before. When a mother makes a statement of this kind, you may be sure that you can absolutely rely on the correctness of her observation. The previous history is always the same. Some weeks, or even months, before, the patient had an acute attack of otitis media, which was treated by massive doses of penicillin, and the symptoms of pain and earache subsided with dramatic speed, usually within 24 hours.

It will be recalled that before penicillin was so abundantly available, the dosages were comparatively small. Today 5 or 10 times these dosages are administered. Toxicity is no problem. The infective organism in the middle ear is annihilated with a speed undreamt of a few years ago. There appears to be no limit to the tolerance for penicillin, and dosages are increased to ever higher levels, so as to provide the patient with a safe antibiotic umbrella against spread of infection.

The sulpha drugs could only be administered in certain dosages beyond which toxic symptoms might appear. It is comprehensible, therefore, that penicillin has become the sheet anchor in the treatment of acute otitis media, and is used in ever increasing doses so as to secure the highest serum-penicillin level. To maintain this level the newer repository preparations play a vital part.

It is appropriate to review the progress of acute otitis media before the days when antibiotics became available, and compare the changes that have occurred in our

\* The author drew attention to antibiotic deafness at the 4th International Congress of Otorhinolaryngology in London in 1949. The following is an excerpt from the discussion which followed Sir Alexander Fleming's opening address on (antibiotics) and Sir Lionel Whitby's on sulpha drugs:

'Mr. O. Popper (Johannesburg): It seems to me a mistake to bracket penicillin and the sulphonamide series in a discussion of this kind. As Sir Alexander Fleming has pointed out in his inspiring opening address, the dosage of penicillin has increased enormously, almost in proportion to its availability. Its innocuousness in unlimited dosage carries with it a serious risk to function in acute infection with exudation and obliteration of the middle ear cleft.

'Paradoxically this peril to the function of hearing has developed as a result of the effectiveness of penicillin. Now, whereas the dosage of penicillin may be increased 5 or 10 times without toxic effects, the sulphonamide series, which Sir Lionel Whitby has so brilliantly presented, have a limited dosage. Beyond this, serious toxic effects would be exhibited, and discussing both together as if they may be used indiscriminately is misleading.'

In a private discussion Sir Alexander Fleming stressed that it was imperative to drain free fluid, whether a pleural effusion or fluid in the open spaces of the tympanum.

† 'Streptomycin deafness' is a well known and accepted clinical entity. The administration of streptomycin over long periods has been shown to have severe toxic effects on the membranous labyrinth, the organ of hearing, and the eighth nerve. Severe vertigo and perceptive deafness (nerve deafness) are sequelae. Streptomycin deafness is irreversible, and the patient is permanently incapacitated.

treatment and outlook. The sequence of events in the pre-antibiotic days would be somewhat as follows:

1. Acute otitis media with pyrexia.

2. Deafness.

3. Earache more or less severe, depending on the amount of distension of the tympanic membrane. Often mastoid tenderness occurred at this stage. This was generally pain referred from the middle ear, or mastoidalgia rather than a true mastoiditis—the cells of the mastoid process still being uninfected.

Stages 1, 2 and 3 occurred almost simultaneously. The doctor was generally called in at stage 3.

4. At this stage the treatment would depend on the symptoms. General measures, including the sulpha drugs, were administered. If deafness and pain were not severe, paracentesis would be delayed; otherwise the drum would be incised and the fluid evacuated from the middle ear. With the relief of tension, the pain would disappear and hearing would be re-established. The clean paracentesis incision healed by first intention once the infection had subsided, and left no post-operative perforation of the drum.

5. Not infrequently spontaneous rupture of the tympanic membrane would take place, with relief of pain and deafness. To allow a case to proceed to spontaneous rupture whilst under expert supervision was considered undesirable for two reasons:

(a) The back pressure of pus in the middle ear would favour an invasion of the epitympanic space and the mastoid cell-labyrinth, and increase the danger of acute mastoiditis or a persistent middle-ear discharge leading to chronic otitis media.

(b) The rupture of the tympanic membrane often left a large defect in the drum, which would not close after the acute otitis had subsided.

6. Quite a considerable proportion of cases would go on to acute mastoiditis, requiring surgical intervention, which early paracentesis might have avoided.

It has been asserted above that antibiotics have changed the character of disease. To clarify this statement in relation to acute otitis media, we must examine the sequence of events which emerges with intensive antibiotic therapy.

A large dose of penicillin is given when acute otitis media is diagnosed, probably 500,000 units during stages 1, 2 and 3 (temperature, deafness and earache). The subsequent stages become:

Stage 4. General measures are aimed mainly towards the relief of pain. The penicillin is generally repeated within 12 hours.

Stage 5. After 24 hours the drum, which was cherry red, and possibly bulging, is already becoming pale, and landmarks reappear. Temperature and pain have subsided. Spontaneous rupture is almost unknown.

It is perfectly safe to delay paracentesis or even omit this measure in the great majority of cases where hearing recovery is complete and there are no associated symptoms such as tinnitus. Further penicillin is generally administered for another 2 or 3 days, and the chances of invasion of the mastoid are negligible.

The incidence of acute mastoiditis has been reduced by 80% of even more. The acute mastoid should become a

surgical curiosity and in the next generation chronic otitis media and chronic mastoiditis, and all the dangerous intracranial complications, should be proportionately rare.

The only discordant note in this symphony of praise for our antibiotics is the fact that the middle ear and its contiguous structures and recesses, as well as the mastoid cells, are spaces into which, during the acute phase, a copious effusion from the capillaries takes place. This fluid is loaded with penicillin to the same level as the blood serum. However, the effectiveness of the penicillin in the effused fluid rapidly deteriorates at body temperature. The inflammatory process in the middle ear has completely subsided. The capillaries in the middle ear have contracted, and no appreciable replenishment of penicillin in the effused fluid can be expected. We have then this fluid barrier locked up behind the drum, forming an obstacle to the sound-path.

This fluid becomes a foreign body in the middle ear. Its antibiotic content being exhausted, re-infection may be expected.

On the other hand it often becomes a jelly-like mass which is difficult to evacuate by simple incision. Eventually it may organize into fibrous tissue and we have a condition very similar to what was once called, for want of a better name, 'Chronic adhesive deafness' or 'otitis media non-suppurativa.'

Reinfection of this residual fluid sometimes leads to spontaneous restoration of hearing and is illustrated in the following case:

A farmer was treated for severe earache with penicillin. The pain subsided within 24 hours. There was no ear discharge. Severe deafness persisted.

Despite this deafness the patient went on a hunting trip in the Low-vel in bitter winter weather. The earache recurred. No medical facilities were available. Spontaneous rupture of the drum occurred, with copious discharge. There was immediate relief of deafness.

This farmer was referred to me by his doctor because he refused further antibiotic treatment, in the conviction that it would bring about his deafness again. However, it was possible to persuade him that with adequate drainage (spontaneous in his case) he had nothing to fear.

Thus far, 93 cases of antibiotic deafness have come to my notice over the past few years, but it is my conviction that this represents a mere fraction of the total number. Many patients whose hearing is still well above the 30-decibel bracket are not aware of their slight hearing impairment, especially if engaged in noisy occupations.

The general practitioner is not equipped to do hearing tests, and by far the greatest proportion of acute otitis cases are treated by him in the first instance. The otologist sees only the more severely deafened cases.

The diagnosis presents no difficulty—residual conductive deafness. The history is typical: Acute otitis which responded to antibiotic therapy, usually massive. The inflammation and pain subsided without ear discharge. Persistent deafness noted at varying periods after this, either by the patient, or in the case of a child, by the mother. Very frequently tinnitus is also complained of—hissing in character and non-pulsating.



### *The 'Off Key' Appearance of the Tympanic Membrane.*

The tympanic membrane, which during the attack was acutely inflamed, cherry red, and often bulging in one or other quadrant, has returned to a grey coloration. This has probably been checked by the general practitioner, who was satisfied with this appearance. A grey drum without perforation is his criterion of cure. The experienced otologist however, despite the grey non-inflammatory look of the drum, would in almost every case of antibiotic deafness observe something 'off key' about its appearance, just as the conductor of an orchestra in a violin concerto will instantly detect that a soloist is 'off key' playing his unaccompanied cadenza, however slight the deviation. The drum is perhaps too grey, or lustreless. It may look like blotting paper, or have a fish-scale appearance. The short process of the malleus may be obliterated and the handle may stand out too prominently. There may be a fulness in one or other quadrant or even a slight pinkish blush in the upper portion. There is something not just right—'off key'—about it.

Add this to the conductive deafness and we are presented with the certainty that there is a sterile fluid or semi-fluid mass behind it.

### *Treatment*

This can be summed up in one word *drainage*. It is remarkable that the fluid of the tympanic effusion may persist for months. Evacuation of this fluid by wide incision of the posterior quadrant of the drum is often sufficient. The incision may have to be repeated.

Evacuation is helped by suction as well as eustachian catheterization. Very frequently a jelly-like worm is discharged from the middle-ear cleft by these measures.

I have had to incise 5 times in one of my cases, where the semi-fluid mass was tenacious and viscid, 3 times in 7 cases, and twice in 17.

In 18 of my cases these measures were insufficient. They were cases where the effusion had become re-infected—and the residual infection remained latent in the epitympanum and mastoid antrum. This was confirmed by X-ray (Dr. Eric Samuel). Drainage of these spaces (in 3 cases bilaterally) cleared the condition

completely. The method I used was an endaural trans-tympanic attico-antrostomy. The surgeon will choose the method he prefers, but I would stress that he should be as conservative as possible, consistently with placing the attic and antrum in communication with the meatus.

*It is the duty of the otologist to impress upon the general practitioner that an acute otitis media is not necessarily disposed of by the administration of antibiotics.*

### SUMMARY

Antibiotic deafness is an effusion deafness or, in other words, it is due to the retention of fluid in the middle ear space, after the administration of antibiotics.

That antibiotics may cause conductive deafness is due to two factors.

1. The very great dosage of antibiotic that is administered, and its rapid action in arresting inflammation.

2. The retained fluid in the middle ear becomes sterile, and the capillaries are not stimulated to dilate and absorb this fluid. With the arrest of inflammation the mechanism of absorption has become paralysed.

It is the practice nowadays for the general practitioner to administer large doses of penicillin or other antibiotic the moment acute otitis media is diagnosed, or when a child complains of earache; i.e. when an effusion has occurred into the middle ear space. These patients are generally not seen by an otologist. Some of them (the proportion is difficult to estimate) come to the otologist very much later, when the attack has subsided, with the complaint of deafness in either one or both ears. This is a pure conductive deafness due to the effusion of fluid into the middle ear. The administration of penicillin or other antibiotic arrests the middle-ear inflammation almost within 24 hours. It also paralyses the mechanism of absorption of the effused fluid in the middle ear cleft. This retained fluid remains as a barrier to the sound-path, and we are presented with a typical conductive deafness.

This fluid is liable to become re-infected, and the infection may remain latent in the attic and antrum.

Treatment varies from simple incision to more extensive measures.

## PRE-ANAESTHETIC MEDICATION FOR CHILDREN—A SIMPLIFIED METHOD

GAISFORD G. HARRISON, M.B., CH.B., F.F.A.R.C.S., D.A.R.C.P. & S.

and

PETER MAYTOM, M.B., CH.B., M.MED. ANAES. (CAPE TOWN)

*Department of Anaesthesia, University of Cape Town and Groote Schuur Hospital, Cape Town*

The aims of pre-anaesthetic medication are:

1. 'Drying' of the secretions of the mouth and respiratory tract in order to prevent the excessive flow of saliva and mucus which occurs in response to the inhalation of irritant anaesthetic vapours.

2. Counteraction of certain undesirable vagal re-

sponses to the induction of anaesthesia, such as cardiac irregularities and even cardiac arrest.

The above two objectives are usually achieved by the administration of a parasympatholytic drug such as atropine.

3. Psychic sedation of the patient, and provision, if

necessary, of  
hension and  
patient, then  
resistance to  
drugs require  
In short, p  
the anaesthe  
patient (and  
ment of the  
The 'drying'  
administered  
factory psy  
children, is  
undesirable  
used hypnot

The phar  
ted that sat  
by the adm  
a single drug

Pharmacolog

Source. S  
found chief  
Scopola car  
with that of  
Chemistry

by the com  
and a con  
tremely clo  
hed from it  
between the

Pharmacol  
patholytic,  
of atropine  
being a de  
producing p  
without res  
does not p  
ministered  
to restlesn  
should be a  
drug. Atr  
in their per  
the action  
bronchial n  
ged than th  
as a block  
sweat gland  
medication  
consistent a

Dosage a  
trial the d  
estimated e  
this being  
taken of th  
was a modi  
and is reflex

In order  
containing  
was made  
Hyoscine  
(or solution  
ml. After



necessary, of analgesia to lessen the patient's apprehension and to lower the general metabolic state of the patient, thereby reducing the utilization of oxygen, resistance to anaesthesia, and the amount of anaesthetic drugs required to produce anaesthesia.

In short, pre-anaesthetic medication aims at rendering the anaesthesia safer and more comfortable for the patient (and the anaesthetist). The satisfactory achievement of these aims in children is notoriously difficult. The 'drying' effect of atropine, the drug which is usually administered, is inconsistent. Achievement of satisfactory psychic sedation, which is so important in children, is either unreliable or bought at the price of undesirable respiratory depression with the commonly used hypnotics.

The pharmacological actions of scopolamine suggested that satisfactory premedication might be achieved by the administration of this drug alone. The use of a single drug would have the added virtue of simplicity.

#### Pharmacology of Scopolamine<sup>1</sup>.

**Source.** Scopolamine is a naturally occurring alkaloid found chiefly in *Hyoscyamus niger* (henbane) and *Scopolia carniolica*. The name hyoscyne is synonymous with that of scopolamine.

**Chemistry.** Scopolamine is an organic ester formed by the combination of the aromatic acid, tropic acid, and a complex organic base, scopine. It is extremely closely allied to atropine, being distinguished from it solely by the existence of an oxygen bridge between the 6 and 7 carbon atoms of the scopine radicle.

**Pharmacological Actions.** Scopolamine is parasympatholytic, its actions being all but identical with those of atropine. Scopolamine has the added property of being a depressant of the central nervous system, producing psychomotor sedation together with amnesia without respiratory depression. Scopolamine, however, does not possess any analgesic properties. When administered alone in the presence of pain, it may lead to restlessness and delirium. In such circumstances it should be administered in combination with an analgesic drug. Atropine and scopolamine differ quantitatively in their peripheral parasympatholytic actions. Whereas the action of atropine upon the heart, intestine and bronchial musculature is more pronounced and prolonged than that of scopolamine, scopolamine is superior as a blocking agent for the salivary, bronchial and sweat glands. For the purpose of pre-anaesthetic medication scopolamine has been found to be a more consistent and satisfactory drying agent.<sup>2,3</sup>

**Dosage and Administration.** For the purpose of this trial the dose of scopolamine to be administered was estimated entirely according to the weight of the child, this being calculated in 20 lb. units. No account was taken of the child's age. The dosage schedule we used was a modification of that suggested by Sheila Anderson<sup>4</sup> and is reflected in Table I.

In order to facilitate administration, a bulk solution containing 0.2 mg. of hyoscyne hydrobromide per ml. was made up by the hospital pharmacy as follows: Hyoscyne hydrobromide 0.04 g., chlorocresol 0.04 g. (or solution chlorbutol 0.5%, 80 ml.) aqua dest. ad 200 ml. After mixing, the solution is filtered and bottled

in 20-ml. rubber-capped multi-dose bottles, which are then steamed for an hour. The incorporation of the bacteriostatic agent chlorocresol (or chlorbutol) renders further sterilization of the solution unnecessary. The scheduled dose of this solution is 0.5 ml. per unit of 20 lb. body-weight (see Table I). This dose is administered by intramuscular injection.

TABLE I. DOSAGE SCHEDULE

Weight of Child (lb.)	Dose of Scopolamine (mg.)	Dose of Scopolamine Solution (ml.)
0-20	0.1	0.5
21-40	0.2	1.0
41-60	0.3	1.5
61-80	0.4	2.0

#### Clinical Trial

Two hundred infants and children anaesthetized for a great variety of surgical procedures, of which the majority were ENT operations, were premedicated with the above-described solution as the sole agent. In most cases this was administered between 30 and 75 minutes before anaesthesia was induced, as reflected in the histogram (Fig. 1).

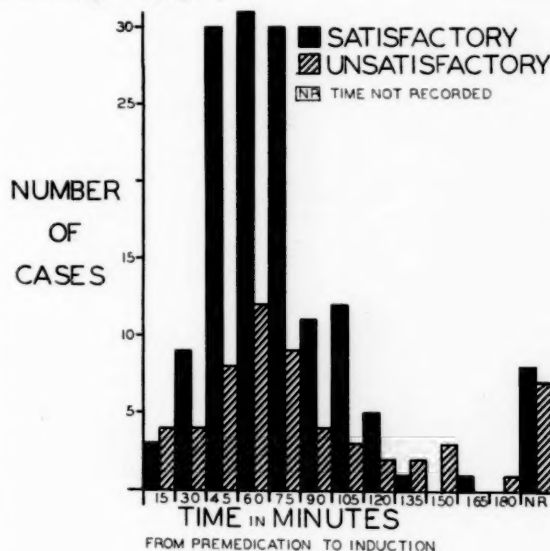


Fig. 1

In the majority of cases anaesthesia was induced in the theatre anteroom, the agents used being nitrous oxide, oxygen and ether. In some cases thiopentone sodium was used to induce anaesthesia. In all cases anaesthesia was maintained with nitrous oxide, oxygen and ether.

The cases were classified into the following groups:

#### 1. Premedication satisfactory

- child drowsy and/or cooperative
- absence of excessive secretions in mouth, pharynx and respiratory tract during and after induction of anaesthesia

## 2. Premedication unsatisfactory

- (a) child wide awake and/or apprehensive
- (b) excessive secretions in mouth, pharynx and respiratory tract provoked by induction of anaesthesia.

## Results

The results are reflected in Table II. This simplified premedication was judged to have been satisfactory

TABLE II. RESULTS

	Satisfactory	Unsatisfactory			
		Total	Secretions	Secretions + Poor Sedation	Poor Sedation
Number ..	141	59	12	9	38
Percentage ..	70.5	29.5	6	4.5	19

in 141 cases (70.5%) with regard to both 'drying' of secretions and sedation. Amongst the 59 cases (29.5%) in which the premedication was regarded as unsatisfactory, the commonest ground for so judging it was inadequacy of sedation; 47 cases (23.5%) were accounted unsatisfactory on this score. Insufficient drying of secretions was encountered in only 21 cases (10.5%). Note the overlap of 9 cases (4.5%) where the premedication was faulted both on account of inadequate sedation and insufficient drying of secretions.

It will therefore be seen that, judged only on the efficacy of the drying effect, the premedication was satisfactory in 179 cases (89.5%). This figure agrees closely with those reported by Griggs *et al.*<sup>2</sup> and West and Papper.<sup>3</sup>

No patients in this series displayed any clinically observable depression of respiration.

Post-operatively the children were all easily managed along the usual lines. There were no cases of irrational or violent behaviour.

It will be seen from the histogram (Fig. 1) that 5 cases of the satisfactory group and 10 cases of the unsatisfactory group received their premedication either less than 15 minutes or more than 120 minutes before induction of anaesthesia. Though an unsatisfactory

time interval between administration of premedication and induction of anaesthesia may be considered the explanation for some of the unsatisfactory group, examination of the histogram shows that this factor is not generally significant.

**Controls.** A series of 'controls' was commenced in which an identically made-up solution containing atropine instead of scopolamine was used. After this solution had been used in 43 cases the series was abandoned, because more than 50% were unsatisfactory, in most cases because of inadequate drying of secretions.

**Comment.** Here is a simple and safe scheme for premedicating infants and children. The respiratory-tract secretions are reliably dried. Sedation, though less reliable, is achieved in the great majority of cases. In combination with other hypnotics more reliable results in this direction may be obtained. The method might then, however, lose its virtue of simplicity.

## SUMMARY

A simplified method is described of premedicating children by the use of scopolamine alone, together with the results of its evaluation in a series of 200 cases, of these—

- (1) 70.5% were satisfactory, and
- (2) 29.5% were unsatisfactory, of which
  - (a) 6% displayed inadequate drying of secretions,
  - (b) 4.5% displayed insufficient drying of secretions and were inadequately sedated, and
  - (c) 19% were inadequately sedated.

We must thank the Superintendent of Groote Schuur Hospital, Dr. N. H. G. Cloete, for permission to publish this article. We gratefully acknowledge the great help and cooperation we received from Messrs. Kingsley and Aitken, of the Groote Schuur Hospital Pharmacy, which made this investigation possible. We also wish to thank all the staff of the Department of Anaesthesia of Groote Schuur Hospital, who were responsible for anaesthetizing this series of patients.

## REFERENCES

1. Goodman, L. S. and Gilman, A. (1955): *The Pharmacological Basis of Therapeutics*, 2nd ed., p. 541 *et seq.* New York: The Macmillan Company.
2. Griggs, T. *et al.* (1953): *Curr. Res. Anesth. Analg.*, **32**, 340.
3. West, J. and Papper, E. (1950): *Anesthesiology*, **11**, 279.
4. Anderson, S. (1952): *Curr. Res. Anesth. Analg.*, **31**, 267.

## SOME REFLECTIONS ON MEDICAL AID PRACTICE

LEON VERCUEIL, M.A., M.D., D.P.H.

I am writing this article not as convenor of the Central Committee for Contract Practice, but as a member of the Association for 33 years, and as one who has watched the Medical Aid movement grow throughout the Union. The views expressed are my own personal views and have been prompted by the very cordial relations that now exist between the Central Committee for Contract Practice and the Advisory Council of Medical Aid Societies. I have been on the Central Committee for Contract Practice since its inception.

Initially there was a feeling of mutual distrust, and suspicion of exploitation from both sides. I can well remember that the meetings between the Central Committee for Contract Practice and the Advisory Council of Medical Aid Societies were not so

friendly. This I believe is now a thing of the past, as evidenced by the spirit of goodwill and cooperation in the last 2 years.

In 1948, when we were at loggerheads with the Provincial Administration of the Transvaal over the Hospitals Ordinance, and when there was a fear of an eventual State medical scheme, Federal Council in Johannesburg unanimously adopted a resolution that the Medical Aid idea should be encouraged, and most of us thought that this would be the answer to a State medical scheme, which was abhorrent to the vast majority of us.

The same year we met the Advisory Council of Medical Aid Societies. They were also against the Hospitals Ordinance in its then shape; and stated that they would rather pay fees to medical practitioners of their own choice than make use of the

free hospital service. Hospitals Ordinance. The result was that although far from perfect, the profession in the end would have done better.

Unfortunately, the State medical scheme has turned out to be a large medical scheme, which would produce a feeling of certain requirements, the major part of the medical aid scheme.

The number of medical aid societies has increased, and their own practice has been operated on a large scale. It is the consensus of the medical aid societies that the amount to 25% of medical aid societies.

Medical aid societies a century ago, any link with the modest and simple for their own direct grants, illness came in and they and the first requirement came from the would be paid and in return practice spread of the Association.

With the medical aid which until a new chapter. At that time of medical aid or commercial medical aid staff. Then medical aid by an and wide. For it none the practice, and society had a member of a charged private assured by are well understood. To digress of persons in and the social their income those who a this class can accounts in the more re a patient's n mending him.

As new societies during their existence, an establishment.

We regret to on Friday, Ch.B. (Edin)

free hospital service for everybody as envisaged by the Transvaal Hospitals Ordinance. We welcomed their support.

The result was the Interim Suspension Ordinance 1948 which, although far from perfect, has not meant financial ruin to the profession in the Transvaal, as the Ordinance that it superseded would have done.

Unfortunately some prominent members of the Association have turned against our former allies now that the danger of a State medical scheme has receded. In me the references to certain large medical aid societies as 'octopuses' and 'Juggernauts' produce a feeling of nausea. The Medical Association lays down certain requirements for medical aid societies to which, by and large, the majority conform.

The number of people with large incomes who are members of medical aid societies has been very much exaggerated. In my own practice the vast majority of medical aid patients we have operated on over a period of many years would have been free cases if they had not belonged to a medical aid society; and this is the consensus of opinion amongst general practitioners in my part of the Reef.

Bad debts in private practice, many general practitioners find, amount to 25%. Let us bear this in mind when dealing with medical aid societies.

#### ORIGIN OF MEDICAL AID SOCIETIES

Medical aid societies came into being in the Union over half a century ago and for many years they operated happily without any link with the Association whatever. They were founded in a modest and somewhat haphazard way by small groups of laymen for their own protection, and their members were assisted by direct grants-in-aid from the society's funds when the bills for illness came in. A minority of societies still cling to this system and they and their members are probably quite satisfied with it. The first requests for direct payment of the doctor by the society came from the individual practitioner, who realized that his fees would be paid more certainly and more expeditiously that way, and in return he allowed a 'preferential rate' to the society. The practice spread and in the course of time was accepted by Branches of the Association throughout the Union.

With the adoption by Federal Council in 1944 of the tariff which until then had been used by the Medical Aid Societies, a new chapter opened.

At that time a phenomenal growth took place in the number of medical aid societies and it became common practice for business or commercial undertakings, both large and small, to include medical aid benefits amongst the inducements offered to their staff. Then came the society which was not sponsored (or 'recognized') by any employer and which cast its membership net far and wide. Founded no doubt with the most altruistic intentions, it none the less developed unfortunate side-effects on private practice, and our erstwhile approval of this particular type of society had to be drastically re-appraised. The position of the member of a medical aid society whose income justifies his being charged private fees is still causing concern, although we are assured by those who run the societies that numerically they are well under 1%.

To digress at this point it may be noted that the vast majority of persons in medical aid societies are in the lower income groups and the societies, who depend on members' subscriptions for their income, often extend themselves to the utmost in helping those who are hard hit as a result of serious illness. Patients in this class cannot give an unlimited guarantee of payment of their accounts in full, and the society is similarly handicapped. All the more reason therefore for us to remember not the fact of a patient's membership of a society, but his means, when recommending him for hospitalization in a private nursing home.

As new societies came into being they turned for guidance, during their formation and earlier stages, to those already in existence, and the natural outcome of this association was the establishment, first in the Cape and then in Natal and the Trans-

vaal, of coordinating bodies which would ensure uniformity in matters of Medical Aid practice, with particular regard to those aspects affecting the Tariff and the Medical Association. Ultimately these three regional organizations set up the Advisory Council of Medical Aid Societies, which is now recognized by Federal Council as the body with whom to negotiate in all matters affecting medical aid societies.

The laymen who met us could therefore be said to represent the whole of the Medical Aid movement in the country, perhaps some 200,000 people, and it is estimated that during the last year the societies paid out in fees between £1,250,000 and £1,500,000 to the medical profession. The figures quoted are conservative and are based on statistics supplied by certain large medical aid funds. Over 150 societies are now on the Association's approved list and at every meeting of Federal Council fresh names come up for approval. We can thus take it that the principle of Medical Aid has come to stay. It is therefore all the more necessary that we not only recognize fully the place of the Advisory Council in the scheme of things but accept its *bona fides*.

Regrettably there has been in the past an atmosphere of suspicion on both sides when we have met medical aid societies for the purpose of revising fees, and there may have been some grounds for it. Of recent years, however, those of us who have dealt with the members of the Advisory Council can testify to their good faith and fairmindedness, and at our last meeting with them we felt that many of our colleagues could with advantage have been present. We have become familiar with them as personalities, accustomed to their manner of speech and their individual characteristics but, above all, I have been impressed by their goodwill and sincerity and the fact that they enjoy the fullest support and confidence of their constituent bodies. We have to remember that in the majority of cases membership of medical aid societies is purely voluntary, and that if their subscriptions become too high, many members may resign and revert to the status of free cases in hospital.

#### FORTHCOMING NEGOTIATIONS

In the near future the Central Committee for Contract Practice will meet the Advisory Council of Medical Aid Societies to revise the schedules of fees for the various Specialist Groups. Most of the Specialist Groups have not had a rise for years, and a revision is therefore overdue. Representatives of the Groups will take part in these discussions, and one hopes that there will be the same satisfaction as there was with the discussions with the W.C.A. Commissioner.

The raising of the general practitioners' visiting and consultation fees on 1 April 1956, plus the recent increase of the confinement fee to 15 guineas, will cost the medical aid societies anything from £75,000 to £100,000 a year (this is an estimate).

One trusts that the new schedules for specialists will be fair to the profession and reasonable to the medical aid societies. With goodwill and cooperation on both sides this can be effected, since the Advisory Council of Medical Aid Societies has agreed to a substantial percentage increase. In negotiating with medical aid societies average private fees are taken into account, and a preferential rate is granted on this basis. One obviously cannot satisfy practitioners who charge more than the customary fees, and there are bound to be discontented individuals.

Many difficulties with the medical aid societies have been smoothed out through friendly negotiation. Medical aid societies have had justifiable complaints against certain medical practitioners, which have been dealt with by the Association.

Looking then to the future, I feel that we as an Association can view with deep satisfaction the establishment of the medical aid system in this country. The principle of the open panel is enshrined in it and there is the guarantee of reasonable fees from that class of patient whom, if they had not belonged to some medical aid society, we should have had to treat as free cases in hospitals, and who, as members of the middle and lower income groups, form the bulk of our practices.

#### OBITUARY : DR. WOLF RABKIN AND DR. E. E. MOSSOP

We regret to announce the death, which occurred at Hermanus on Friday, 11 January 1957, of Dr. Jacob Wolf Rabkin, M.B., Ch.B. (Edin.). His specialty was paediatrics.

We also regret to announce the death of Dr. E. E. Mossop, M.R.C.S., L.R.C.P., retired surgeon, author and archaeologist, which occurred on Sunday 13 January.

In Memoriam notices will appear in later issues of the *Journal*.



## THE WORLD MEDICAL ASSOCIATION

### PROTECTION OF CIVILIAN DOCTORS

In activities to fulfil its objectives 'to maintain the honour and protect the interests of the medical profession' and 'to assist all peoples of the world to attain the highest possible level of health', The World Medical Association has adopted an emblem to be used by civilian doctors, their ancillaries and civil defence installations.

Studies of the 4th Geneva Conventions and Conferences with representatives of the International Committee of the Red Cross revealed that the protection of the Red Cross Emblem did not and could not apply except to doctors, ancillaries and medical installations in military organizations. Hence, in time of war, the civilian doctor, his assistants and civil defence units not under military control were without protection in carrying out their humanitarian responsibilities to the population.

The World Medical Association has adopted a medical emblem and a Code of Medical Ethics in time of war. These were recommended by a joint Committee made up of representatives of the International Committee of the Red Cross; the International Committee on Military Medicine and Pharmacy and The World Medical Association with the World Health Organization providing an Observer. Adoption by the member associations and legislative enactments in each country and recognition at the international level to insure complete protection under the emblem is now being implemented.

#### *The Medical Emblem*

The new medical emblem destined to protect civilian doctors, their ancillaries and civilian defence units is a red staff and serpent

upon a white field. The staff is represented by a vertical line; the serpent by a sinuous line over the vertical line with two (2) undulations on the left side and one (1) undulation on the right side.

#### *Medical Ethics in Time of War*

'Medical ethics in time of war is identical with medical ethics in time of peace, as established in the International Code of Medical Ethics of The World Medical Association. The primary obligation of the doctor is his professional duty; in performing his professional duty, the doctor's supreme guide is his conscience.'

Subsequent statements in this Code provide:

The primary task of the medical profession is to preserve health and save life;

The doctor, in emergencies, must always give the required care impartially and without consideration of sex, race, nationality, religion, political affiliation or any other criterion and will continue this medical assistance as long as necessary;

All treatment given by the doctor must be in the best interest of the patient;

Scientific knowledge may never be employed to imperil health or destroy life;

Medical secrecy must be preserved; and

The privileges and facilities afforded the doctor must never be used for other than professional purposes.

### PASSING EVENTS : IN DIE VERBYGAAN

Dr. Walter J. Levy, M.C., Ch.B., D.O. (R.C.P. & S.), F.R.C.S. has joined Dr. Maurice Franks in ophthalmic practice at 66 Lister Buildings, Jeppe Street, Johannesburg. Telephone: 22-4522.

\* \* \*

Leipzig Fair. The 1957 Leipzig Spring Fair which is to be held on 3-14 March 1957 and will be participated in by exhibitors

from nearly 40 countries, will include a section of chemico-pharmaceutical products.

\* \* \*

Dr. Walter J. Levy, M.C., Ch.B., D.O. (R.C.P. & S.), F.R.C.S. met by Dr. Maurice Franks in ophthalmic practice aangesluit tot Lister-Gebou 66, Jeppestraat, Johannesburg. Telefoon: 22-4522.

### NEW PREPARATIONS AND APPLIANCES : NUWE PREPARATE EN TOESTELLE

Romicil 'Roche'. This new antibiotic preparation is to be released at the end of January 1957 by Roche Products (Pty.) Ltd., who supply the following information:

#### *Composition*

Romicil contains an active substance the antibiotic oleandomycin obtained from *Streptomyces antibioticus*. It is available in capsules of 250 mg. and 100 mg. and in dry-substance vials containing 500 mg. of oleandomycin in the form of the crystalline phosphate.

#### *Properties*

Romicil facilitates the rapid control of most infections, including severe forms. It is well tolerated on oral and parenteral administration, and it does not affect the physiological activity of the useful intestinal flora. Its use gives rise to allergic reactions in extremely rare cases only.

The antibacterial spectrum of Romicil places it between penicillin and the broad-spectrum antibiotics. As a rule there is no cross-resistance with the latter. Romicil is often effective against infections caused by bacteria which have become resistant through previous antibiotic therapy.

Romicil is stable at all pH values between 1.1 and 9.0 and is thus not inactivated in either the stomach or the duodenum. Administration of therapeutic doses at 6-hourly intervals provides

an almost constant effective blood level; notably high concentrations are found in the bile and in the urine.

#### *Indications*

As a result of extensive clinical trials, Romicil can be recommended in:

Infections due to most Gram-positive and certain Gram-negative bacteria, including those resistant to penicillin, to broad-spectrum antibiotics or to sulphonamides, and in infection due to certain viruses and rickettsiae.

Respiratory tract infection: bronchitis, pneumonia (including virus and whooping-cough pneumonia), bronchopneumonia and Q-fever, bronchiectasis, pulmonary abscess, pleurisy, empyema. Tonsillitis, sinusitis, otitis, parotitis, scarlet fever and its complications, diphtheria, septicemia, endocarditis lenta.

Biliary-tract and urinary-tract infections, gonorrhoea. Furunculosis, acne phlegmonosa, erysipelas, impetigo. Abscesses, paronychia, osteomyelitis, anthrax. Enteritis due to antibiotic-resistant staphylococci.

#### *Dosage*

*Oral.* Adults: Initial dose 2-4 x 250-mg. capsules, followed by 1-2 x 250-mg. capsules every 6 hours. The minimum daily dose is 1g. Children: 30-50 mg. per kg. daily according to the severity of the case, divided into single 6-hourly doses; in young children, the 100-mg. capsules should be used. The capsules should be

swallowed whole, if necessary, with a little liquid. Parenteral (if possible): 2-4 intramuscular injections. Romicil is a glucose or p

Handbook of Anatomy and C. V. Mos

Contents: Part 2. Adoption of Autopsy. 9. False Impression of Another. 13. 16. Malpractice. 18. The Medical of X-ray Film. Physician Must Right to Practice. 20. Workmen's Medical. 2. The Identity Disease. 5. Injury of the Head and 10. Rape. 11. Poisoning. 14.

The list of field that however, so as its title. It is designed about any in the course to in the book to cases as a The decision this country guide in mo The treat and lends fo

Ciba Foundation G. E. W. C.P. Mil 36s. net.

Contents: Ch. of foetal rat. The age factor capacity of ov follicles. By Rowlands. C. cells of the hu changes in di aspects of age in placental f in the placenta and placenta By R. J. Har By H. Tsuchi deer antlers. in the human By E. W. Yen importance in By P. L. Mol

The Ciba controlled cooperation progress ca of differen Foundation



swallowed whole with a little liquid without chewing. When necessary, the capsule can be emptied and its contents taken with a little liquid or jam.

Parenteral (in severe cases, where oral administration is impossible): 2-4 vials  $\times$  500 mg. (1-2 g.) per 24 hours spread over 2-4 intramuscular or intravenous injections. After the first injection Romicil may be given as intravenous drip infusion diluted in glucose or physiological NaCl solution. The introduction of the

contents of a solvent ampoule into a vial of Romicil produces an isotonic solution for injection.

#### Packings

Capsules 250 mg.—6, 12 and 100. Capsules 100 mg.—12 and 100. Vials 10 c.c. mg. dry substance—1 and 6. The packings of dry substance vials also contain solvent ampoules (10 c.c. 0.5% NaCl solution).

## REVIEWS OF BOOKS : BOEKRESENSIES

### LEGAL MEDICINE

*Handbook of Legal Medicine.* By Louis J. Regan, M.D., LL.B. and Alan R. Moritz, M.D. Pp. 201. £1 13s. 6d. St. Louis: C. V. Mosby Company. 1956.

**Contents:** Part I. *Physician and Patient—Physician and the Law.* 1. Abortion. 2. Adoption. 3. Artificial Insemination. 4. Consent for Operation. 5. Consent for Autopsy. 6. Contributory Negligence. 7. Damages. 8. Dying Declarations. 9. False Imprisonment. 10. Insane Persons. 11. Insurance. 12. Liability of Act of Another. 13. License to Practice. 14. Malpractice. 15. Malpractice, Criminal. 16. Malpractice, Prevention Malpractice, General Principle. 17. Medical Societies. 18. The Medical Witness and His Testimony. 19. Narcotics. 20. Ownership of X-ray Films. 21. Partnership. 22. The Patient and the Problem. 23. The Physician Must Report. 24. The Professional Fee. 25. Proximate Cause. 26. Right to Practise in a Hospital. 27. Special Defenses. 28. Statute of Limitations. 29. Workmen's Compensation. 30. Wrongful Death Actions. Part II. *Scientific Medico-legal Investigation.* 1. When is a Death a Coroner's Case, and Why? 2. The Identity of the Dead Person. 3. Time of Death. 4. Sudden Death From Disease. 5. Injuries by Mechanical Violence. 6. Injuries and Disease. 7. Injuries of the Head and Spine. 8. Bullet Wounds. 9. Mechanical Asphyxia and Drowning. 10. Rape. 11. Abortion. 12. Injuries by Other Forms of Physical Energy. 13. Poisoning. 14. Medico-legal Aspects of the Individuality of Blood. *Glossary.*

The list of section titles above gives an indication of the large field that has been covered. The treatment of the subjects is, however, so clear and concise that this book should be considered, as its title suggests, to be a handbook rather than a text-book. It is designed to be kept handy for reference when there is doubt about any of the many difficulties which face the medical man in the course of his practice. Obviously the legal system referred to in the book's title is that of the United States, and such references to cases as are made are those which have been before U.S. Courts. The decisions reached are not necessarily the same as those of this country but, as the principles are similar, the book is a useful guide in most cases.

The treatment of the malpraxis question in Chapter 16 is novel and lends force to the lessons to be learnt. A useful book.

A.H.T.

### THE AGING PROCESS

*Ciba Foundation Colloquia on Ageing. Volume 2.* Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch. and Elaine C.P. Millar, A.H.W.C., A.R.I.C. Pp. xi + 263. 96 illustrations. 36s. net. London: J. & A. Churchill Ltd. 1956.

**Contents:** Chairman's opening remarks. E. C. Amoroso. Organ culture studies of foetal rat reproductive tracts. By Dorothy Price and Richard Pannabecker. The age factor in some prenatal endocrine events. By A. Jost. The regenerative capacity of ovarian tissue. By S. Zuckerman. The history and fate of redundant follicles. By P. C. Williams. The corpus luteum of the guinea pig. By I. W. Rowlands. Observations on the cytomorphosis of the germinal and interstitial cells of the human testis. By D. W. Fawcett and M. H. Burgos. Mitochondrial changes in different physiological states. By E. W. Dempsey. Morphological aspects of ageing in the placenta. By G. B. Wislocki. Chronological changes in placental function. By A. St. G. Huggett. Biochemical evidence of ageing in the placenta. By C. A. Villie. Uptake of radio-potassium ( $K^{45}$ ) by the uterus and placenta during the advancement of pregnancy in the rat and the goat. By R. J. Harrison and J. L. D'Silva. Modifications in the foetal development of the rat after administration of growth hormone or cortisone to the mother. By H. Tuchmann-Duplessis and Lucette Mercier-Parot. The growth cycle of deer antlers. By G. B. Wislocki. Ageing of the axillary apocrine sweat glands in the human female. By W. Montagna. The metabolism of senescent leaves. By E. W. Yemm. The physical instability of human red blood cells and its possible importance in their senescence. By J. E. Lovelock. Ageing in human red cells. By P. L. Mollison. General Discussion.

The Ciba Foundation, a scientific organization financed but not controlled by Ciba Pharmaceuticals, aims at facilitating international cooperation in medical and chemical research. It rightly believes that progress can be accelerated by the comparing of notes by scientists of different disciplines and from different countries. Hence the Foundation sponsors frequent international conferences; according-

ly, it invited to London 27 scientists from Britain, France, USA and Switzerland—each scientist a recognized world authority in his specific domain—to discuss aging in certain tissues such as erythrocytes, placenta, deer antlers, which because they have a shorter life-span than their parent organism, are styled transient tissues.

Undeterred by their awareness that the laws governing the aging of any one living species or tissue are not of universal application, they probed into, and apparently gave credence to, the hypothesis that similar chemical, physical and biological rule predetermine the aging process of at least that class of living substances which undergo deterioration with senescence, hopeful that their colloquia would ferret out a pointer to the discovery of a single cause of aging.

The book consists of an almost verbatim record of the papers presented and the discussions which followed. It is most absorbing, crammed with scientific reports and data, much of which is as yet not available elsewhere. It is studded with erudite *obiter dicta* and brilliant witticisms, but at the same time may shock the sensitive reader by the suavity, reminiscent of 'painless dentistry' with which time-hallowed beliefs are demolished. It should prove instructive not only to gerontologists but to all scientists and medical practitioners.

Ciba, the participants, and Dr. Wolstenholme, deserve congratulations on the excellent result of their cooperation.

J.M.H.

### CLINICAL PSYCHOLOGY

*Progress in Clinical Psychology. Volume II.* Edited by Daniels Brower, Ph.D., Lawrence E. Abt, Ph.D. Pp. viii + 364. \$7.75. Grune & Stratton Inc. 1956.

**Contents:** Part I. Introduction. 1. The Development of Clinical Psychology: A Transactional Approach. By Lawrence E. Abt, Ph.D. Part II. Assessment and Appraisal Processes. Introduction to Part II. 2. Rorschach Method in Review. By Zygmunt A. Piotrowski, Ph.D. 3. Thematic Apperception and Fantasy Tests. By Frederick Wyatt, Ph.D., and Joanne B. Veroff, M.A. 4. Validity of Sentence Completion Tests and Human Figure Drawings. By Herbert Zimmer, Ph.D. Part III. Psychotherapeutic and Counselling Processes. Introduction to Part III. 5. Psychoanalytic Techniques. By Rudolf Ekstein, Ph.D. 6. Client-Centered Therapy. By Julius Seeman, Ph.D. 7. Current Trends in Group Psychotherapy. By George R. Bach, Ph.D. 8. Reading and Other Subject Disabilities. By Albert J. Harris, Ph.D. 9. Diagnosis and Treatment of Speech Disorders. By George W. Gens, Ph.D. 10. Play Therapy and Related Techniques. By A. G. Woltmann, M.S. 11. Music Therapy. By Edward Podolsky, M.D. 12. The Use of Art in Therapy. By Ruth E. Hartley, Ph.D., and Emery I. Gondor. 13. Bibliotherapy. By Daniels Brower, Ph.D. 14. Progress in Psychodrama. By J. L. Moreno, M.D., and Lewis Yablonsky, M.A. 15. Hypnosis and Clinical Psychology. By Jerome M. Schneck, M.D. 16. Current Trends in Research on Dreams. By Calvin S. Hall, Ph.D. Part IV. Special Applications of Clinical Psychology. Introduction to Part IV. 17. Clinical Psychology in Correctional Institutions. By Raymond J. Corsini, Ph.D. 18. Progress in Rehabilitation of the Physically Handicapped. By Morton A. Seidenfeld, Ph.D. 19. Administrative Aspects of Clinical Psychology in State Institutions. By Maurice G. Kott, Ph.D. Part V. Approaches to Clinical Psychology. Introduction to Part V. 20. Neuropsychology of Higher Processes: Cerebral Damage and Visual Perception. By William S. Battersby, Ph.D. 21. Statistics in Clinical Research. By Leonard S. Kogan, Ph.D. 22. Research in Counseling and Psychotherapeutic Processes. Index.

This second volume of this series seeks to bring up to date work in the field of clinical psychology for the years 1952-54, with special emphasis on hypnosis, dreams, speech, reading and specialized therapeutic techniques. Its 'digest' construction, comprising contributions by specialists in each field, is both fruitful and pleasing to the psychologist, whose eyes leap to the names of old friends or masters, but apart from Moreno's somewhat hectic and, as always, enthralling exposition of his own psycho-drama technique, the style is heavy with statistical data, experimental techniques,

and non-committal open conclusions. In view of that aura of generalised philosophy with which many medical practitioners still endow psychology, this emphasis on scientific methods is no doubt enlightening, but it makes for "heavy going" for all but the trained psychologist and the neuro-psychiatrist.

The author comments on the miscellaneous welter of definitions and concepts which are making the Rorschach technique an unwieldy instrument in both research and practice. He leaves one with the apt question, whether the information yielded by this time-consuming, exhausting technique is sufficiently valuable in the busy field of hospital and consultant practice to render it 'worth its salt'.

Considerable space is devoted to group therapy—that technique on which hospital and communal practitioners are focusing so much interest and hope. Bach, the contributor of this section claims that in addition to insight into conscious and unconscious motivations, group therapy offers unique opportunity for evolution from dependent to 'giving' relationships, as well as mutual understanding and acceptance. The main problem appears to be the obvious one—the selection and training of therapists capable of shouldering and manipulating the cross-currents, the entanglements of 'transference' inherent in the handling of different types and levels of patients, and the ability to use all the patients as 'co-therapists'.

This chapter reveals the opposition of the psycho-analytical schools to group-therapy, opposition based on the disrupting effect of the all-powerful emotions of jealousy, competition and frustration inherent in the transference relationship with the therapist. The second objection lodged by the psycho-analytical schools appears to be, to use their own professional jargon, a 'masochistic' manifestation. In observing that other group-members have similar neurotic (bad) symptoms, patients come to accept, with complacency, their own conflicts and anxieties. Feeling justified, they resist the disciplined 'reality-orientated role' of the professional analyst.

In an effort to do justice to new and widening approaches in psycho-therapy, chapters are devoted to play-therapy, music-therapy, art-therapy, hypnotherapy and even bibliotherapy. Harris' chapter on disabilities in school subjects emphasizes the close relationship between reading and other phases of language development and word usage. There is still much divergence of opinion about the significance of lateral dominance and reading reversals. But the weight of responsible opinion still maintains that children with tendencies towards left-handedness should be encouraged to be consistently so. Gens' chapter on the Diagnosis and Treatment of Speech Disorders is extensive, careful and enlightening. As one would expect, research has found no correlation between intelligence and cleft-palate. Similarly, before the mentality of a cerebral palsied child can be fairly evaluated, periodic psychological studies, which take into account perceptive losses, are imperative. Any worth-while approach must be a team approach. As to disorders of rhythm, stuttering remains the main problem. In spite of divergent etiological theories there is a basic agreement on the need for reducing the patient's fears, forcings, and inadequate social behaviour. The interested reader is referred to the works of Van Riper.

From the mass of literature dealing with the effects of brain damage upon perception, Battersby has selected the visual field for his discussion of neuro-psychology of the higher processes. In this field the pioneering work of Goldstein remains the cornerstone upon which pivot research and practice.

In that this report covers professional fields ranging from projective techniques to the administrative aspects of clinical psychology in state institutions; from psycho-analytical techniques to statistics in clinical research, it does fulfil its introductory promise of providing a fairly balanced statement on the vast field of clinical psychology.

M.R.C.

## DERMATOLOGY

*Diseases of the Skin.* Eleventh Edition. By Richard L. Sutton, Jr., A.M., M.D., F.R.S. (Edin.). Pp. xxii + 1479. 1972 Illustrations. £12 10s. 9d. St. Louis: The C. V. Mosby Company, 1956.

*Contents:* Anatomy. Embryology. Physiology. Symptomatology and Pathology. Etiology. Diagnosis. Treatment. Dermatoses Due to Physical Agents. Dermatoses Due to Chemical Agents. Dermatoses Due to Viruses. Dermatoses Due

to Rickettsiae. Dermatoses Due to Bacteria. Dermatoses Due to Fungi. Dermatoses Due to Animals. Dermatoses Due to Metabolic Disorder. Dermatoses Due to Vascular Disorder. Dermatoses Due to Pigmentary Disorder. Dermatoses of Neurologic and Psychiatric Origin. Dermatoses of Undetermined Cause. Malformations and Neoplasms of the Skin and Adjoining Mucosae. Diseases Affecting Especially the Cutaneous Appendages. Diseases Affecting the Mucosae Adjoining the Skin.

Sutton on Diseases of the Skin has been one of the standard text-books in dermatology, used throughout the English-speaking world. It is therefore with great pleasure that I anticipated the publication of the new edition.

The considerable recent advances in therapy in general medicine, are also applicable to dermatology. The author has taken full advantage of this, and on pages 67-79 he briefly discusses the steroids, antibiotics, anti-histaminics and other modern drugs, and evaluates them in full detail further on, when dealing with the appropriate dermatosis.

In the chapter on lupus erythematosus the old as well as the new treatments with the anti-malarial drugs are lucidly expressed. The dangers of vitamin D2 in lupus vulgaris are in my opinion well defined, and the more modern treatment with INH, streptomycin, PAS etc., are given in full detail.

Psychosomatic factors in the different dermatoses are well brought out, although I feel this subject warranted a more extensive approach.

On page 88 the author deals with the dermatological aspect of X-ray therapy in dermatitis, and expresses very strong views of his own, in the old controversial matter, on whether this field belongs to the dermatologist or the radiologist.

The new edition, like the old, teems with references to the literature, which undoubtedly makes the book invaluable not only to the postgraduate student but also to the practising dermatologist.

R.L.

## THE DRUG-ADDICTION PATIENT

*The Drug Addict as a Patient.* By Marie Nyswander, M.D. Pp. xi + 179. \$4.50. New York and London: Grune & Stratton, Inc. 1956.

*Contents:* Preface. I. Drug Addiction in the United States: Past and Present. II. Pharmacology. III. Physiology. IV. Psychology. V. Social Pathology. VI. Clinical Diagnosis. VII. Withdrawal Treatment. VIII. Rehabilitation. IX. The British Approach. X. Looking Forward. Appendix: An Addict's Glossary. Index.

This is a readable and instructive account of some of the aspects of drug addiction in the United States. The information is set out clearly and simply in separate sections and covers a wide field which includes legislation, pharmacology, physiology, psychology, diagnosis and treatment. Amid a welter of facts and figures the individual patient still emerges clearly and his problems are dealt with sensibly and sympathetically.

The writer deploras American legislation which has made the Bureau of Internal Revenue responsible for all drugs and drug traffic and has virtually taken the addict out of the hands of the doctors. This has encouraged a tendency to regard the addict as a social offender rather than as a patient and has fostered the belief that compulsory treatment is the answer to the problem. This ignores the complexities of the problem and has forced many addicts into an association with criminals of the drug underworld which intensifies the difficulties of their ultimate rehabilitation. Dr. Nyswander compares this undesirable state of affairs with that in Britain, where the medical profession has always been allowed a great deal of latitude in handling drug addicts—at their own pace and in their own time. As a consequence the number of addicts is much less than in the United States and there is very little illegal drug-trafficking.

The clinical section is well handled and gives clear and detailed instructions on the various techniques of treatment. The psychiatric aspect is discussed in some detail. Its value is mainly descriptive. Addicts are classified as inadequate people who are bent on self-destruction and the suggestion is made that 'the impairment of the addict's self-esteem seems to stem from his inability to identify with the father and feel his own strength in the relationship'. Dr. Nyswander points out that much of the physiology of addiction also remains unsolved and that full clarification of the mechanisms operating requires a combined approach from physicians and psychiatrists.

The importance of work done by the brain is run and probably with a group

Hutchinson, Hunter, M. Pp. xv + net. London

*Contents:* I. C. Alimentary System. Examination of The Skin. IX. and Nose. XII. Examination Laboratory Inv

It is 59 years 'Clinical Medicine During these appear. The known as 'Robert after unparalleled made sure the title 'Hutchinson'. It would thousands of for the assist or the Mem and practicing The present of its usefulness careful history not need to be well known

*Cryptococcosis.* M. L. L. M.D. Pp. York and

*Contents:* Preface. Source of Infection. Aspects. VI. IX. Laboratory (Culture Media)

Although, the book is one with cryptosporidiosis clinical findings cures are ex of meningococcal infections, is a multiple renal The associated endothelial quote a series form of mal

To the Editor March 1945 enteritis in is most probable that you may simplicity of

The importance of social rehabilitation is stressed and the work done by Narcotics Anonymous is applauded. This organization is run on much the same lines as Alcoholics Anonymous and probably owes its success to its emphasis on identification with a group.

F.R.A.

#### 'HUTCHISON'S CLINICAL METHODS'

*Hutchison's Clinical Methods*. Thirteenth Edition. By Donald Hunter, M.D., F.R.C.P. and R. R. Bomford, D.M., F.R.C.P. Pp. xv + 452. 25 Plates (some in colour). 94 Figures. 18s 6d. net. London: Cassell and Company Limited. 1956.

*Contents:* I. Case-taking. II. General Condition and Appearance. III. The Alimentary System and Abdomen. IV. The Circulatory System. V. Clinical Examination of the Blood. VI. The Respiratory System. VII. The Urine. VIII. The Skin. IX. The Nervous System. X. Examination of the Eye, Ear, Throat and Nose. XI. Locomotory System. XII. Clinical Examination of Children. XIII. Examination of Pathological Fluids. XIV. Some Bacteriological and Other Laboratory Investigations. Appendix. Index.

It is 59 years since the first volume of 'Hutchison and Rainy', as 'Clinical Methods' was inevitably known, made its appearance. During these years Sir Robert Hutchison has seen 12 editions appear. The late Dr. Harry Rainy passed on and the book became known as 'Hutchison and Hunter'. With the retirement of Sir Robert after an association with his text-book which must be unparalleled in medical literature, the present co-authors have made sure that his name will live on in that association in its new title 'Hutchison's Clinical Methods'.

It would be no exaggeration to say that there must be many thousands of medical practitioners who have reason to be grateful for the assistance of this book in their studies for the M.B. degree or the Membership Diploma. There is little doubt that students and practitioners will continue to make use of it for years to come. The present edition contains 20 fewer pages but it has lost nothing of its usefulness as a result and the emphasis remains on the careful history and the thorough clinical examination. One does not need to recommend a famous book like this; its value will be well known for many years to come.

A.T.

#### CRYPTOCOCCOSIS

*Cryptococcosis*. Torulosis or European Blastomycosis. By M. L. Littman, M.D., Ph.D. and Lorenz E. Zimmerman, M.D. Pp. x + 205. IV Color Plates. 84 Figures. \$8.50. New York and London: Grune & Stratton, Inc. 1956.

*Contents:* Preface. I. Introduction. II. Historical Aspects. III. Incidence. IV. Source of Infection and Portal of Entry. V. Human Cryptococcosis. Clinical Aspects. VI. Cryptococcosis in Animals. VII. Immunology. VIII. Pathology. IX. Laboratory Studies. X. Treatment and Prognosis. Addendum. Appendix (Culture Media and Special Stains). References. Index.

Although, by virtue of the nature of the subject, the bias in this book is on the pathology and laboratory methods associated with cryptococcosis, the clinician will find a good account of the clinical findings and contemporary treatment, albeit that permanent cures are extremely rare if obtained at all. The protracted course of meningeal cryptococcosis, with its many and varied manifestations, is stressed, and a case is quoted which, punctuated by multiple remissions and exacerbations, ran a course of 16 years. The association between malignant disease of the reticulo-endothelial system and cryptococcosis is reiterated. The authors quote a series of cases, 30% of which were associated with some form of malignant reticulosis.

#### CORRESPONDENCE : BRIEWERUBRIEK

##### TREATMENT OF GASTRO-ENTERITIS

To the Editor: In the issue of the *British Medical Journal* of 3 March 1945 I gave an account of a successful treatment for gastro-enteritis in children. This being the season in which this disease is most prevalent, especially amongst the non-Europeans, I feel that you may like to publish a description of this treatment, the simplicity of which is one of its recommendations.

The pathology of cryptococcosis is thoroughly dealt with, but one is left with the feeling that the contribution in this chapter is not of the same original quality as that found in the other chapters. Much of the information given could be obtained from any standard work on pathology.

Probably the most outstanding chapters are those dealing with the laboratory aspects of the disease and of the organism. The authors deal as fully as a work of this nature allows with the morphological, cultural and biochemical characteristics of *C. neoformans*; with its immunological behaviour, its virulence for laboratory animals, and the criteria for the identification of an organism as *C. neoformans*. Most useful is an appendix in which is listed an impressive number of culture media with methods of their preparation, as well as the techniques and characteristics of the main histological stains; the mycologist and pathologist alike should find this information of value in the investigation and routine diagnosis not only of *C. neoformans* but of all fungi.

The photographs and photomicrographs are of excellent quality, especially the colour plates of colonial appearance and histological stains. However, there are far too many illustrations and, as many are nearly identical and do not illustrate any added feature, some of them might profitably be omitted.

At the outset the authors profess that their goal in this work is 'to produce a volume in which the most useful features of a monograph and an atlas are combined'. After reading their book it may be stated without hesitation that they have admirably succeeded.

C.J.U.

#### FELLOWSHIP EXAMINATION PAPERS

*Fellowship Examination Papers for the Diplomas of the Royal College of Surgeons Edinburgh 1951-56*. Pp. 58. 5s. 6d. net. Postage 3d. Abroad. Edinburgh: E. & S. Livingstone Ltd. 1956.

*Contents:* Fellowship Examination—Primary: Anatomy—Applied Physiology and the Principles of Pathology. Fellowship Examination: Principles and Practice of Surgery. Optional Subjects: Anatomy and Physiology of the Visual Apparatus. Physiological Optics, and Pathology and Bacteriology in relation to Ophthalmology. Gynaecology—Gynaecology and Obstetrics—Laryngology, Otology, and Rhinology—Obstetrics—Ophthalmology—Ophthalmic Medicine and Surgery—Surgical Pathology and Operative Surgery.

Once again, E. & S. Livingstone have produced the Fellowship Examination Papers for the Diplomas of the Royal College of Surgeons of Edinburgh. Dated 1951 to 1956, this last volume is in every way comparable with its predecessors, and the papers are accurately grouped under the various headings, starting with Anatomy and finishing with Operative Surgery. The questions cover the whole range of Surgery, Anatomy and Applied Physiology in the special subjects.

For all those who contemplate taking a higher examination in Surgery this collection is of infinite value. It acts as a curtain-raiser for the examination and a mental exercise which may show gaps in the candidate's knowledge before he actually sits. It shows quite clearly the type of question that one might meet and embodies the wide variety that one has to expect; and surely no-one who contemplates taking a Fellowship in Surgery, could face the examination without knowing what is in store.

These small books of examination papers are well known to most postgraduate students who intend sitting for a higher examination; in fact, there are very few who do not purchase one or other of them in order to channel their reading along the correct lines. The price is 5s. 6d., which is undoubtedly the best value the postgraduate student in Surgery can obtain.

T.B.McM.



pean patients. This was before the establishment of a separate Children's Hospital. An ample opportunity was therefore afforded for watching the results of treatment. I obtained such good results with Dr. Baumann's treatment that it was introduced into all his wards as a routine procedure in all cases of infantile gastro-enteritis.

Fractional doses of, say, 2-5 gr. of magnesium sulphate, are given every 1, 2 or 4 hours; according to the age and condition of the patient. Whereas a large dose of magnesium sulphate is aperient in its action, in very small doses it acts as an astringent.

When necessary other, better-known, treatments were combined with the giving of magnesium sulphate, such as a preliminary dose of castor oil, the withholding of food, and the giving of much plain water by the mouth, together with saline infusions when required. Intestinal lavage, in severe cases, was also helpful. The small patients were never left to pass the enema themselves, but it was syphoned off by the rubber tube kept in the rectum, so saving the strain and tenesmus that often accompanies the voiding of an enema.

The results were almost universally successful, except in cases that were too advanced when admitted to hospital. Mild cases that were treated as out-patients were also, as a rule, very satisfactory in their results.

It is often necessary to institute treatment of gastro-enteritis very promptly, and the delay in out-of-the-way places due to waiting for some modern drug not locally in stock may mean the difference between life and death, whereas magnesium sulphate is practically always available, thus enabling this treatment to be instituted at once.

L. Erasmus Ellis

P.O. Box 24

Kloof

Natal

24 December 1956

#### 'MENEER' OF 'DOKTER'

Aan die Redakteur: Na aanleiding van die skrywe van dr. R. L. Retief<sup>1</sup> wens ek hom daarop te wys dat 90% van die geneesher, sowel as tandartse, geen reg het om hulleself 'dokter' te noem nie, daar hulle nie doktersgrade in medisyne of tandheelkunde besit nie, maar slegs 'n licentiaat of baccalaurius graad in hulle professionele vak het. Hulle word alleen 'dokter' genoem omdat dit gebruiklik is, net soos chirurgie en verwante spesialiteite in Engeland 'meneer' genoem word, omdat dit eerstens gebruiklik is en tweedens om hulle van interniste te onderskei.

As dit dus gebruiklik word om 'n chirurg as 'meneer' aan te spreek in Suid-Afrika, dan kan ons daar niks aan doen nie.

En buitendien in ons land waar byna elke man wat 'n bietjie skoolgegaan het, 'n doktersgraad in watter rigting ook besit en waar daar so baie persent doktersgrade uitgedeel word, selfs aan mense wat nooit eers 'n universiteitsopleiding gehad het nie, is dit somtyds aangenaam om as 'meneer' aangespreek te word, en in elk geval help dit finansiële, want direk as mens as 'dokter' in die publiek aangespreek word, moet jy meer betaal, en ek is na baie jare moeg om somtyds dubbel te betaal vir die eer om 'dokter' te wees. 'n Kwart eeu gelede het die titel soet op my ore geval; nou bring dit helaas te veel onplezierige herinneringe mee.

Beste wense vir u en u blad vir die komende jaar. Mag albei nog baie lank voortgaan om beide as die voorligter en die forum vir dokters sowel as menere in die mediese professie te dien.

Willem Steenkamp

S.A. Mutual-Gebou

Darlingstraat

Kaapstad

8 Januarie 1957

1. Retief, R. L. (1957): S. Afr. T. Geneesk., 31, 24.

#### INFESTATION BY FASCIOLA HEPATICA

To the Editor: I refer to Louw and Wilkie's article<sup>1</sup> under this name in the *Journal* of 1 December 1956.

The authors obviously quote Mönnig 1934 (*Veterinary Helminthology and Entomology*) when they name *L. natalensis*, *P. africana* and *B. verreauxii* as intermediate hosts. The most recent edition

(1947) of Mönnig, however, lists *L. natalensis*, *Galba truncatula*, *Physopsis africana* and *Bulinus tropicus*. It remains to say, since it does not seem to be generally known, that these were all incriminated by Porter while working at the SAIMR as long ago as 1920 and 1925. Further it is quite certain that the question of the intermediate hosts of *Fasciola hepatica* in South Africa is by no means settled and requires investigation.

Secondly the authors say 'no South African cases have hitherto been reported'. A quick glance at the Annual Reports of the primary source of all medical research in South Africa, namely the SAIMR, shows that since 1950 alone 4 human infections have been reported. Furthermore as long ago as 1925 Porter of the SAIMR reported the recovery *post mortem* of 3 flukes from the bile duct of a Shangaan; she also noted 2 additional cases which showed eggs in the faeces. In 1939 de Meillon (SAIMR) and Holland noted one infection in Zululand. A more extensive search will no doubt reveal others.

The authors are to be congratulated on drawing attention to *Fasciola hepatica* as a parasite of man in South Africa. Their statement, 'It is suggested that human infestation may be less rare than is generally believed', merits the fullest consideration. A recent survey by us of mine recruits from a certain coastal area, for instance (Bilharzia Natural History Unit, CSIR, SAIMR) showed that no less than 40 out of 120 were passing ova morphologically resembling those of *F. hepatica*!

Finally surely one is 'infested' by lice, fleas, gnats, etc. but 'infected' by virus, bacteria, amoebae, helminths etc. Or am I wrong?

Botha de Meillon

37 Waterfall Avenue

Craighall

Johannesburg

4 January 1957

1. Louw, J. H. and Wilkie, W. (1956): S. Afr. Med. J., 30, 1157.

#### TREATMENT OF INTESTINAL AMOEBIASIS

To the Editor: Your attention is drawn to an error in the editorial<sup>1</sup> in the *Journal* of 15 December 1956. Stovarsol, Carbasone and Milibis are described as 'trivalent arsenicals'. These compounds contain pentavalent arsenic.

Auremetine is no longer recommended for treatment of amoebiasis (Refs.: *The Pharmacological Basis of Therapeutics* (Goodman and Gilman), 1955, p. 1214; *Extra Pharmacopoeia*, vol. 1, 1952, p. 673).

F. V. Stephen-Lewis

Medical Director

Winthrop Products (Pty.) Ltd.

P.O. Box 2865

Johannesburg

8 January 1957

1. Editorial (1956): S. Afr. Med. J., 30, 1199.

#### CARBUTAMIDE AND TOLBUTAMIDE IN DIABETES

To the Editor: While we largely agree with the remarks in your editorial<sup>1</sup> of 22 December on this subject there are two small points on which our articles<sup>2,3</sup> in the same issue of the *Journal* are slightly misquoted. We considered that carbutamide represents an advance in the therapy of diabetes but did not state that this includes the 'severe' form. Secondly, we did observe toxic effects—a few erythematous rashes and one very severe case of agranulocytosis.<sup>4</sup>

In passing may I also be allowed to disagree with the suggested mode of action of the oral preparations? The evidence that insulinase is concerned in their activities is indeed scanty.

W. P. U. Jackson

Groote Schuur Hospital

Observatory, Cape

25 December 1956

1. Editorial (1956): S. Afr. Med. J., 30, 1221.
2. Saunders, S. J., et al. (1956): *Ibid.*, 30, 1222.
3. Jackson, W. P. U., et al. (1956): *Ibid.*, 30, 1227.
4. Jackson, W. P. U. and Herman, J. B. (1956): *Ibid.*, 30, 904.